THE ZETETIC

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

ARTICLES ON

Geller Phenomena

The TM Movement

Psychic Reading

Astrology

Cattle Mutilations

The UFO Debate

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Circulation Patricia Pliss

Cover design by Pat Truzzi

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From the Editor

The reaction to our first issue has been very gratifying. Our subscription list now numbers nearly 1,000; and we hope that those who like our journal will spread the word to others, especially to community and academic libraries. We are particularly anxious to increase our library subscribers, since this is an excellent way for us to reach many readers and thereby help educate the general public, which is a major function of our Committee.

Since this journal is not a profit-making venture (both the contributors and I are unpaid), we very much need subscriber support if we are to continue. We need your subscription renewals to keep us going. We are optimistic about our future, but expansion of the Committee's activities (including more frequent publication of this journal) requires resources thus far more a dream than a reality. Judging from the letters we have received from readers, there is much enthusiasm about our purposes, and we hope we can turn that excitement into help in obtaining much-needed resources. It is a sad fact that support for magical solutions is far easier to obtain than is funding for serious investigative work that is likely to lead to disenchantment. We need your help and your suggestions, and we hope that you will begin with the simple act of renewing your subscription.

About this issue

We are pleased to begin publishing reader responses with this issue. Where conditions permit we will seek responses from those criticized in articles and reviews, often in the same issue (as with the Hynek and Vallee replies to Sheaffer's review of their books in this issue). We particularly welcome letters of response and analysis and will attempt to give fair

(though not necessarily equal) space to criticisms. The journal and the Committee will seek objectivity and fair play, but this should not be confused with a claim of neutrality on the issues. Science is not neutral in regard to facts, but it should be objective and rational in its inquiries.

THE ZETETIC will consistently attempt to deal fairly, rationally, and objectively with claims of the paranormal. But this should *not* be misinterpreted as a claim of impartiality. Some of our readers apparently expected us to act simply as indifferent referees in the exchanges between orthodox and unorthodox viewpoints. That is not our role. This journal is thoroughly committed to a scientific perspective. That entails a strong commitment to the existing body of scientific knowledge that has accumulated over the centuries. We recognize that the borders of scientific knowledge are fluid and that science continues to evolve. But scientific evolution grows in a fashion that continues to subsume its earlier explanatory perspectives. New data and relationships (once validated) must be absorbed into current science in a systematic fashion. Thus science is by its very character *conservative* and *skeptical* toward extraordinary claims. Thus *THE ZETETIC* represents a skeptical (but we hope not dogmatic) approach to claims of the paranormal. We will seek to evidence rationality, openness, and reasonableness; but this attitude should not be confused with neutrality. We feel no obligation to give equal time or space to claims unwilling to play by the ground rules of science. We hope our readers will find us "open-minded," but as has been said, "there's a difference between being open-minded and being so open-minded that your brains start leaking out." We do not view ourselves as "inquisitors," since we do not accept a picture of ourselves as dogmatic. We are not "upholders of the faith," but we do hope that we can uphold the basic rules of scientific method. These rules seem reasonably clear to us, and we invite those who make claims of the paranormal to join us in debate along those guidelines.

Parameters of the paranormal

Many have inquired about the scope of *THE ZETETIC*. A great difficulty surrounds the semantic confusion about terms like *paranormal, pseudoscience*, and other labels used to discuss the extraordinary claims which seek examination by and entrance into normal science. It might be helpful to clarify some of these terms.

As I have outlined elsewhere (Truzzi 1972), claims that seek entrance

into "normal" or ordinary science and that do so by attempting validation through accepted methods of science (the scientific "rules of the game") are labeled *protosciences.* Some of these may eventually establish themselves as ordinary sciences, once acceptance is gained; others will be found wanting and will ultimately be rejected by the scientific community. In general *THE ZETETIC* is concerned with an examination of the claims of the protosciences.

The term *pseudoscience*, meaning "false science," may or may not apply to a protoscience. It may also be the case that there are pseudosciences among the accepted, normal sciences. The term protoscience refers to the lack of social acceptance of a "science" by the community of relevant scientists. It does not refer to the methodological issue of validity of the claims. The methodological issues surrounding the truth of the claim determine whether the claim is pseudoscientific. This can best be seen in the following simple matrix:

		In terms of scientific method	
		Acceptable	Unacceptable
In terms of institutionalized science and its attitudes	Acceptable	1	2
	Unacceptable	3	4

In terms of this matrix, 1 refers to ordinary or normal science, and 2, 3, and 4 all refer to what I have called *protosciences*, insofar as all seek acceptance into ordinary science, 1, and allege to seek validation through use of the scientific method. Both 2 and 3 are called pseudosciences, but 2 is truly pseudo (false), while 3 is not; and 4 is a full-fledged pseudoscience which one would usually find labelled "quackery," since it is unacceptable both methodologically and institutionally (by, that is, the scientific community of "gate keepers"). Obviously those in category 4 usually claim they are in category 3. Unfortunately those in 2, who should be in 4, are accepted by those in institutionalized science along with 1—and are not usually perceived, therefore, as being pseudosciences.

It should be noted that there are many ways in which a pseudoscience can be false. These include not merely a lack of falsifiability for the claims (the now classic definition offered by Sir Karl Popper), but include falseness in the data claims (through both error and fraud), problems in

operationalization (which can be separated from the issue of falsifiability for some cases), and a variety of problems both logical and methodological. It seems likely that the different forms of pseudoscience would appear with different regularities (probabilities) in cells 2 and 4.

In general the reason for unacceptability by the scientific community (institutionalized, normal-ordinary science) is a lack of "fit" between claimed and established phenomena. Such unaccepted claims are usually termed *anomalies*. In fact we should distinguish *true* anomalies (those data which do not "fit" but which are accepted as real by scientists) from *alleged* anomalies. Most of the data claimed by the late Charles Fort and his followers (usually called Forteana) are merely alleged anomalies, often not even minimally investigated for accuracy. (Fort himself merely clipped newspaper stories relating such strange incidents without really seeking to verify them.) In order to keep the discussion here brief, I will lump the claimed and real anomalies together (in part, also, to avoid the issue, since the reality of an anomaly is usually what is argued about rather than its lack of fit within existing scientific theories) and simply call both anomalies.

Anomalies are basically of two types: anomalous facts (variables) and anomalous processes (relationships). For example, a claim that a striped swan or a unicorn exists, concerns a fact that does not fit our expectations. If tomorrow either were found, no revolution in zoology would have to take place. Adjustments would have to be made in biology taxonomies, but little more. On the other hand, the claim that ordinary planets influence ordinary occupational choices of humans (as in astrology or the astrobiology of Michel Gauquelin) posits an anomalous relationship or process. Such new "forces" would require serious changes in our current law-like statements in science. Similarly, in acupuncture it is the relationship between ordinary pins into the body and ordinary pain that is extraordinary. If the claims for acupuncture are true, it could mean serious reconceptualization of our views in neurophysiology. Obviously, too, some anomalies contain consequences for both facts and relationships. Thus finding a mermaid not only would represent a new fact but would have drastic implications for our whole view of evolution and probably even genetics. But most anomalies can be distinguished on the basis of whether they constitute claims about strange variables or strange relationships between variables.

A revealing matrix can now be created showing the patterns of scientific claims available.

		Relationship (processes)	
		Ordinary	Extraordinary (anomalous)
Variable (facts)	Ordinary	A	C
	Extraordinary (anomalous)	B	D

In this matrix A would constitute propositions found in ordinary science: ordinary (accepted) variables in ordinary relationships. An example of B would be an extraordinary variable (e.g., a unicorn, a sunken continent, a strange radiation) in ordinary relationship to other things. These would constitute what I would call *cryptoscientific* claims. An abominable snowman or Yeti would be a cryptozoological claim; a sunken continent (Atlantis) might represent a cryptogeographical claim. Ordinary variables in extraordinary relationship, as in C, I would label *parascientific* claims. Thus telepathy would constitute a parapsychological claim (two people thinking the same thing is not itself extraordinary, but the claim that a thought can be transmitted to another person and cause a second, parallel thought is extraordinary). Acupuncture would involve paraphysiological claims. Those claims that involve extraordinary variables and relationships, as found in D, would combine both cryptoscientific and parascientific claims. Since no obvious term exists for these claims, I will simply call them *crypto-parascientific* claims. Since claims of the type D tend to have little support from the rest of science (since both the variables and the relationships are extraordinary), they tend to become more isolated and are often labelled quackery more readily than either cryptoscientific or parascientific claims. Quite commonly, these crypto-parascientific claims have support outside science (e.g., from religion) to keep them going. Often these claims border on science, or are seen as outside of science and as supernatural claims. An example would be the argument made by the late Sir Arthur Conan Doyle for the existence of fairies. These alleged strange creatures (of whom Sir Arthur claimed to have good photographs) would revolutionize our thinking in a number of ordinary sciences should they be shown to exist. I would also argue that the claims of Dr. Immanuel Velikovsky constitute crypto-parascientific claims. He asserts (in *Worlds in Collision*) that certain historical events that are des-

cribed biblically but are generally not accepted by orthodox historians took place; thus his claims are cryptohistorical. But to explain these alleged events Dr. Velikovsky argues that some extraordinary astronomical events took place which many astronomers perceive as contrary to established (believed) laws of contemporary physics, thus making the claims paraphysical, too.

This simple typology reveals some significant differences about the strategies necessary for scientific acceptance of claimed anomalies. A claim that is cryptoscientific is (at least in theory) relatively easy to validate but nearly impossible to falsify. Thus, if I were to find a live unicorn, I could show it to others and convince them of its existence; but if no unicorn is found, the believer can always claim that it exists somewhere yet to be discovered. But a parascientific claim is relatively easy to falsify and difficult to validate. If I claim that astrology works, a simple statistical test could disprove my claim experimentally; but if the results of the experiment were positive, I would still have to contend with alternative explanations, the need for replications, and so on.

Thus, simply to lump all sorts of esoteric claims together does a disservice to the complexities involved when we speak of paranormal claims. Even to lump together the work of all those involved with a single esoteric claim (such as UFO or psi enthusiasts) can obscure important differences within such groups.

THE ZETETIC hopes, in dealing with these diverse claims, to recognize important distinctions. Most important, let me emphasize that simply designating a claim cryptoscientific or parascientific or as protoscience does not imply anything about its truth. These terms are used simply to show the relationship of the claims to ordinary science. As I have indicated, pseudoscience may exist within ordinary science as well as outside of it; and true scientific claims may exist outside of ordinary (institutionalized) science. One important function of *THE ZETETIC* is to aid in eliminating pseudoscience from within science and expanding science to include new empirical truths. Our goal, then, is Truth, and not Orthodoxy.

—M.T.

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The Nonpsychic Powers of Uri Geller

David Marks and Richard Kammann

Renewed scientific interest in psychic or paranormal phenomena has followed recent experiments conducted with the Israeli stage-performer Uri Geller. We present here results of an investigation of alleged paranormal phenomena produced by Mr. Geller. Geller has submitted to laboratory controlled tests of his ESP ability at Stanford Research Institute with positive results (Targ and Puthoff 1974), but those experiments have been criticized on the grounds that the researchers did not take adequate precautions to prevent the use of ordinary modes of communication. These include the possible use of radio signals sent by an accomplice (Hanlon 1974) and imperfect shielding of target material from Geller's visual field.[1]

A recent visit by Geller to the New Zealand stage-circuit (23 March through 4 April 1975) provided an opportunity to conduct further tests of his powers, subject to his willingness to cooperate. Regrettably Geller was not willing to participate in any further experiments, and it now seems unlikely that he will agree to do so on further occasions. Since Geller and other alleged psychics may avoid study under adequately controlled laboratory conditions, it is necessary to develop techniques of field obser-

1. One of the authors (R.K.) visited the S.R.I. laboratories in November 1975 and observed that there was a hole three-to-four inches in diameter between the "shielded room" and the target area. This tubular hole was at least one foot in length and normally provides cables into the shielded room when it is used for EEG experiments. Its location is about three feet above the floor, high enough to look through by bending over or kneeling. It would provide a cone of visible area perhaps three-to-five feet in diameter against the opposite wall of the anteroom. Dr. Puthoff stated that the hole was completely "shielded" with a metal cover (no longer available for inspection) and that cotton gauze was also used to block the duct. Auditory cues may have been possible if Geller unstuffed the cotton in the hole from the inside and listened through it. Perhaps just as important as the four-inch hole is the window between the "shielded" room and the anteroom. It appeared to be a one-way-vision screen (i.e., a reversible mirror) about two feet wide and 1.5 feet high. In November 1975 it was covered by a bulletin board screwed over it in the anteroom. Dr. Puthoff stated that it was even more thoroughly covered by a shield when Geller was being tested.

vation that can help to distinguish between the normal and the paranormal hypotheses.

Our method was to record the apparently essential features of the allegedly paranormal effects observed in the field, and then, by controlled follow-up investigations under similar conditions with nonpsychic subjects, to determine whether or not the same effect could be readily produced using normal sensory and motor functions. In short, we used a delayed control group. While this design is necessarily imperfect in that we could not replicate the exact conditions of the original data, if the follow-up experiments show a striking similarity in detail to the Geller effects, then it is more reasonable and parsimonious to assume that Geller used the same normal modes of communication.

Although Geller declined our invitation to conduct controlled laboratory experiments, he did agree to several informal demonstrations of his powers. We were also able to observe and record a variety of Geller's demonstrations during radio, television, and stage performances. An important advantage of the field-study approach is that it does not involve the intrusiveness and social alienation of the subject that may accompany rigorous measurement procedures and that may, as a number of researchers have recently noted, interfere with sensitive paranormal phenomena (Hasted et al. 1975; Taylor 1975). In all of the cases reported herein, Geller performed voluntarily, without interference by us, and in each case he claimed to be using paranormal abilities.[2]

Perception of graphic material

In one series of trials Geller demonstrated his ability to reproduce pictures that had been drawn and then sealed inside envelopes. A total of nine trials are listed in Table 1; these took place in a number of different locations over an eight-day period.

Trial 1 took place during a recorded interview with Geller in a Wellington, New Zealand, hotel on 24 March 1975. A picture of a ship (Cook's barque, *The Endeavour*) was drawn on white paper in light-blue, ballpoint-pen ink (see Figure 1a). The paper was a standard sheet of hotel

2. All quotations attributed to Geller are taken from tape recordings made on the occasion. This particular statement is obviously incorrect since James Cook was not a pirate. It is also of interest to note Geller's report of "orange sails" in light of the fact that the orange center of the insignia printed on the paper coincides with one of the lower sails in the drawing when the paper is folded and help up to the light (see Figure 1).

stationery, boldly printed with the hotel's name and address (in black), an insignia, and a border (both orange and dark blue). The upper and lower thirds of the paper were folded over the drawing, which was placed inside a single white envelope.

Table 1. Summary of trials

Trial	Date (day, mo., yr.)	Place	Target	Presented by	Prepared by	Figure
1	24/3/75	Radio studio	ship	D.M.	D.M.	1a and 2a
2	25/3/75	Radio studio	flower	B.E.	R.E.	1b and 2b
3	25/3/75	Radio studio	goblet	B.E.	S.E.	1c and 2c
4	25/3/75	Radio studio	stripes/ grid*	D.M.	A.E.	No drawing
5	30/3/75	T.V. studio	2 bars/ cross*	P.S.	R.K.	No drawing
6	30/3/75	T.V. studio	various/ man*	P.S.	R.K.	No drawing
7	1/4/75	Radio studio	house/ hat*	G.D.	D.M.	No drawing
8	1/4/75	Radio studio	2 bars/ cross*	G.D.	D.M.	No drawing
9	1/4/75	Radio studio	various/ man*	G.D.	R.K.	No drawing

*Figures described in the "*x*/*y*" format were so designed that when they unfolded they appeared as described by the *x* term; but when observed through the folded paper they appeared as described by the *y* term.

D.M., R.K., and A.E. are research psychologists. B.E., P.S., and G.D. are radio and television announcers.

Two psychologists (D.M. and A.E.) were present during the trial, but the target drawing was known only to D.M. There was a friendly, cooperative atmosphere in which the observers allowed Geller to control the conditions. The trial lasted 11.5 minutes. Geller asked that he be allowed to hold the envelope in his hands, and he did so continuously for the first 8.5 minutes while he talked and answered questions about his ESP ability. Although Geller handled the envelope extensively during this time, he made no attempt to reproduce its contents. He then asked D.M. to go into

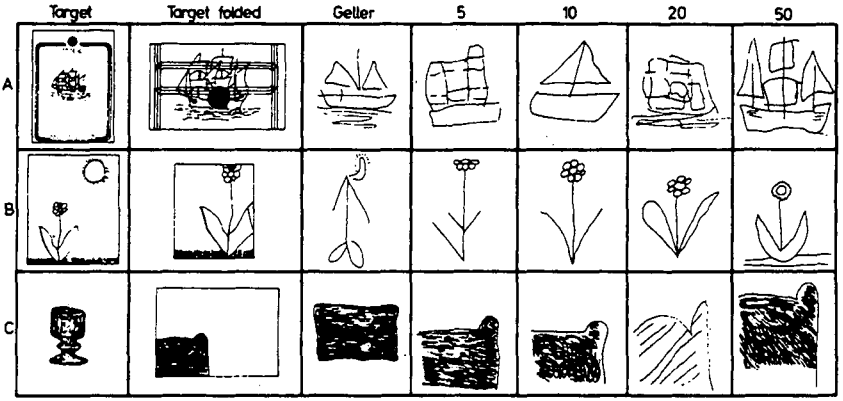

Figure 1. Target drawings presented to Geller and to nonpsychic controls. The first and second columns show targets as they appeared in unfolded and folded states. Geller's final attempts at reproducing the targets are shown in column 3. Columns 4-7 show the best student reproductions following inspection times of 5,10,20, and 50 seconds. The drawings were presented to the control subjects in the same envelopes used in the trials with Geller under similar lighting conditions. Note that in the case of target B the sun was drawn in light-yellow crayon and is invisible in the folded state. The wine goblet (target C) was totally transformed in shape when folded.

another room and redraw the picture. D.M. was instructed to repeat the drawing a total of three times. Meanwhile A.E. was asked to draw what he could "pick up" and, at one point, to fetch another pen (although Geller had already been provided with one), thus leaving the subject completely unobserved for five to ten seconds.

Trial 1 concluded when Geller reported: "I've got a sailing boat; but many sails and water. Suddenly I saw not white sails but orange sails, and I said, 'If it's not a pirate boat then it's nothing.' "[3] Geller then revealed the drawing reproduced in Figure 1a.

Trials 2 and 3 took place in the studio of a radio station in Wellington on 25 March 1975. Geller was invited to be interviewed on a live "talk-back" program hosted by Dr. B. Edwards (B.E.), and D.M. was invited to observe and record the phenomena which took place.

3. This research was supported by a grant from the University of Otago Research Committee. We thank Linda Addis, Gillian Denny, Brian Edwards, Tony Egan, Martin Fisher, Brent Gracie, Robyn Irwin, Paul Savage, and Roxane Smith for their help and encouragement. We also acknowledge our debt to Uri Geller for his time and patience.

For Trial 2 a picture was drawn in crayon on off-white, lined paper. The picture showed a dark-blue flower, dark-green grass, and a light-yellow sun (see Figure 1b). The drawing was folded twice, first along the horizontal median and then along the vertical median, and placed inside two white envelopes. The envelopes were then sealed. The target was known only to B.E. and his daughter (who had prepared the drawing but was not present during the trial). The trial lasted 85 minutes during which time Geller handled the envelope extensively but also demonstrated various other effects of the psychokinetic type and functioned in his role as guest speaker on the program. Geller produced a series of 29 tentative drawings before submitting a final attempt; these included a number of different images, most of which were triangular in shape with a vertical center line. The final drawing is shown in Figure 1b.

In Trial 3 the target was another crayon drawing on off-white, lined paper (see Figure 1c). This drawing, a wine goblet, was heavily shaded, folded twice, as in Trial 2, and placed inside two white, sealed envelopes. The target was known only to the person who prepared it, B.E.'s wife (S.E.), who was not present during the trial. The trial lasted 18 minutes, during which time Geller handled the envelope. He produced four attempts. His final drawing is shown in Figure 1c. When the envelopes were unsealed and the target drawing was revealed, Geller was obviously disappointed by his lack of success. He stated, "I never get a drawing when it is shaded. I could have got it if it wasn't shaded in."

As indicated in Table 1, for the remaining six trials of the series Geller made no further attempts to reproduce the target material. These further target drawings were either politely refused, ignored, or flatly rejected. Reasons for refusal included lack of time, fatigue, or the inability to produce effects mechanically or on command.

Comparison with nonpsychic controls

On the basis of observations made with the original target drawings presented to normal subjects, we cannot support Geller's claim that in Trials 1 through 3 he used paranormal or extrasensory perception. Although the target drawings were originally believed to be invisible when placed inside the containing envelopes, the experimental evidence suggests that when the envelopes are pressed flat and rotated to certain light orientations the target material can be seen through the envelopes as faint lines.

Forty-eight naive university students (aged 18 to 30 years) were

presented with the target drawings of Trials 1 through 3 and two other target drawings for practice trials. They were given the following instructions: "This is an experiment on visual perception. I'm going to give you five envelopes. Inside each one is a drawing done on notepaper. The paper will be folded, and it may be inside another envelope. Copy the drawing inside exactly as you see it. You may hold the envelope up to the light or use any method you like, but you cannot open the envelope. We want you simply to draw an outline of what you see. The drawings are not complicated. There may be a few details in the drawing but they're not important. Just draw the main idea. No guesswork—just draw exactly what you see. The first two envelopes are for practice only." To allow for the special features of the notepaper containing the target for Trial 1, the subjects were told: "The paper in this envelope is folded and imprinted with a hotel name, along with the hotel's insignia and a border. You can ignore these aspects, but draw what you can see of the drawing." The subjects were randomly allocated to four different viewing times—5, 10, 20 or 50 seconds—and the 48 attempts at each target were drawn on three-by-five-inch cards.

In the second phase of the experiment six naive undergraduates judged the accuracy of each set of 48 student responses and of Geller's final drawings. Accuracy was judged against the original target in both its folded and unfolded states. Each of Geller's final drawings was faithfully copied onto a three-by-five-inch card so that it would be indistinguishable from others in the series. The judges used a scale defined as follows: 0 = nothing drawn; 1 = totally inaccurate; 2 = very inaccurate; 3 = inaccurate; 4 = slightly accurate; 5 = moderately accurate; 6 = very accurate; 7 = almost perfectly accurate. Mean interjudge reliability was 0.81.

Mean accuracy ratings obtained by the responses at each observation interval are given in Table 2. The criterion for accuracy in Table 2 is the unfolded version of each target. Geller's performance was significantly better than the average student performance at 50 seconds for both the drawings of the ship and goblet and about equal to the 20-second average for the drawing of the flower.

Unfortunately the total time Geller spent effectively examining each drawing is unknown, as is the effect of the prior experience Geller has had at perceiving drawings in sealed envelopes. In addition, Geller was allowed multiple attempts at reproducing the target material. It seems reasonable, therefore, to compare Geller's final attempts with the best of the student attempts at each inspection interval. These are presented in Figure 1. As

Table 2. Average accuracy of drawings by Geller, by students at four inspection times, and by best students at each inspection time.

Target	Geller	Average students				Best students			
		5s	10s	20s	50s	5s	10s	20s	50s
1. Ship	4.33	1.65	1.65	1.84	2.83	3.83	4.00	2.83	5.17
2. Flower	3.33	2.48	2.87	3.36	4.23	4.33	4.67	5.00	5.67
3. Goblet	2.50	1.02	1.42	1.36	1.80	2.33	2.33	2.17	2.67

indicated in Table 2, with the exception of the flower drawing, where Geller's accuracy was actually lower than that obtained by the best student attempt at even 5 seconds, Geller's responses were within the range of rated accuracy of the best student drawings. Geller's accuracy was no greater than that obtained through methods of visual inspection. These results lead, therefore, to the conclusion that Geller simply perceived the faint outlines of the folded drawings through the envelopes.

The folded versions of the target material as perceived by transmitted light are illustrated in Figure 1. The folded version of the goblet is of special interest since, because of the heavy shading and the positions of the folds, it bears little resemblance to the unfolded drawing. As shown in Figure 1c, all responses, including Geller's, matched more closely the folded versions of the target. Trial 3 was crucial because the goblet drawing was the only case for which genuine paranormal powers were necessary to accurately reproduce the target material. Geller's performance did not differ from that of subjects using normal visual perception and can provide no support for the paranormal hypothesis.

Starting watches

Uri Geller claims that he can fix or start broken watches by a paranormal method usually known as psychokinesis. Typically he instructs each participant to hold a "broken" watch in his hands and to think, "Work! Work! Work!"

Seven jewellers that we surveyed estimated that over 50 percent of the watches brought in for repair are not mechanically broken, but have stopped because of dust, dirt, gummed oil, or badly distributed oil. In such cases holding the watch in one's hand for a few minutes can warm the oil, and additional handling or winding movements can help free the working parts. These physical procedures are necessarily involved in

carrying out Geller's "psychic" instructions.

During one week six jewellers tried to start stopped watches that were brought in for repairs by such holding-and-handling methods before opening the case for inspection. Of 106 watches attempted, 60 (57 percent) started working. Forty-five of the 46 watches that did not start were judged by the jewellers in their "post-mortems" to have been impossible to start without opening the case to correct a mechanical defect.

In order to determine whether the "Geller effect" was greater than an equivalent holding-and-handling physical effect, two surveys were conducted. First, each member of a class of psychology students was asked to find one person who had attempted to start a watch with the aid of instructions Geller had given on TV or radio and to record the results. The students were also told to try to find a person with a broken watch and to carry out a fixed series of holding-and-handling procedures. The students were given detailed printed instructions that emphasized that they must have no prior knowledge of the results obtained by the possible subjects.

Second, these same two testing procedures were employed in a random-sample telephone survey. If the telephone respondent had not tried to start a watch by following Geller's instructions, he or she was asked whether there was a broken watch in the house, and if so, to bring it to the telephone. The experimenter then described the handling procedures and engaged the respondent in a nonpsychic topic of conversation during the holding period. The holding-and-handling procedures in both surveys consisted of a sequence of: (1) holding the watch in a loosely clenched fist for three minutes; (2) gentle rotations; (3) winding. The results are shown in Table 3, where it can be seen that the "Geller effect" was not superior to the simple physical effect.

Table 3. Percentages of watches that started following Geller's instructions and ordinary procedures.

Method	Geller's instructions		Physical procedures	
	Number attempted	Percentage success	Number attempted	Percentage success
1. Student survey	13	38.4	32	68.9
2. Telephone survey	30	53.3	29	44.8
Totals	43	48.8	61	57.3

What little evidence is available from interviews of audience members at a public stage-demonstration in Dunedin, New Zealand, suggests that Geller's presence in the room does not enhance his effect. Out of a sample of 12 watches given to Geller on stage, four started. Out of 17 watches held in the hands of audience members, three started.

At the several private demonstrations and public performances by Uri Geller we also observed a wide variety of other "Geller effects," including metal bending. On analysis every one of these cases had design features which would allow the use of normal (nonpsychic) procedures to achieve the effect. However, as analysis of these cases depends to a large degree on our accuracy as observers (albeit with audiotape recordings and film), they are not reported here.

Conclusion

Parsimony dictates the choice of normal explanations for the phenomena described here. Geller's procedures allow him to use ordinary sensory channels and ordinary motor functions. While we cannot with our data refute the Stanford Research Institute experiments, we question whether it is credible that Geller uses normal sensory-motor means outside the laboratory but switches to paranormal means inside it.

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"Cold Reading": How to Convince Strangers that You Know All About Them

Ray Hyman

Over twenty years ago I taught a course at Harvard University called "Applications of Social Psychology." The sort of applications that I covered were the various ways in which people were manipulated. I invited various manipulators to demonstrate their techniques—pitchmen, encyclopedia salesmen, hypnotists, advertising experts, evangelists, confidence men, and a variety of individuals who dealt with personal problems. The techniques which we discussed, especially those concerned with helping people with their personal problems, seem to involve the client's tendency to find more meaning in any situation than is actually there. Students readily accepted this explanation when it was pointed out to them. But I did not feel that they fully realized just how pervasive and powerful this human tendency to make sense out of nonsense really is.

Consequently, in 1955 I wrote a paper entitled "The Psychological Reading: An Infallible Technique For Winning Admiration and Popularity." Over the years I have distributed copies of this paper to my students. The paper begins as follows:

> So you want to be admired? You want people to seek your company, to talk about you, to praise your talents? This manuscript tells you how to satisfy that want. Herein you will find a "sure-fire" gimmick for the achievement of fame and popularity. Just follow the advice that I give you, and, even if you are the most incompetent social bungler, you cannot fail to become the life of the party. What is the secret that underlies this infallible system? The secret, my friend, is a simple and obvious one. It has been tried and proven by practitioners since the beginnings of mankind. Here is the gist of the secret: To be popular with your fellow man, tell him what he wants to hear. He wants to hear about himself. So tell him about himself. But not what you know to be true about him. Oh, no! Never tell him the truth. Rather, tell him *what he would like to be true about himself!* And there you have it. Simple

and obvious, but yet so powerful. This manuscript details the way in which you can exploit this golden rule by assuming the role of a character reader.

I will include essentially the same recipe for character reading in this paper that I give to my students. In addition I will bring the material up to date, describe some relevant research, and indicate some theoretical reasons why the technique "works." My purpose is not to enable you to enhance your personal magnetism, nor is it to increase the number of character readers. I give you these rules for reading character because I want you to experience how the method works. I want you to see what a powerful technique the psychological reading is, how convincing it is to the psychologist and layman alike.

When you see how easy it is to convince a person that you can read his character on sight, you will better appreciate why fortune tellers and psychologists are frequently lulled into placing credence in techniques which have not been validated by acceptable scientific methods. The recent controversy in *The Humanist* magazine and *THE ZETETIC* over the scientific status of astrology probably is irrelevant to the reasons that individuals believe in astrology. Almost without exception the defenders of astrology with whom I have contact do not refer to the evidence relating to the underlying theory. They are convinced of astrology's value because it "works." By this they mean that it supplies them with feedback that "feels right"—that convinces them that the horoscope provides a basis for understanding themselves and ordering their lives. It has personal meaning for them.

Some philosophers distinguish between "persuasion" and "conviction." The distinction is subtle. But for our purposes we can think of subjective experiences that persuade us that something is so and of logical and scientific procedures that convince, or ought to convince, us that something is or is not so. Quite frequently a scientist commits time and resources toward generating scientific evidence for a proposition because he has already been persuaded, on nonscientific grounds, that the proposition is true. Such intuitive persuasion plays an important motivational role in science as well as in the arts. Pathological science and false beliefs come about when such intuitive persuasion overrides or colors the evidence from objective procedures for establishing conviction.

The field of personality assessment has always been plagued by this confusion between persuasion and conviction. In contrast to intelligence and aptitude tests, the scientific validation of personality tests, even under

ideal conditions, rarely results in unequivocal or satisfactory results. In fact some of the most widely used personality inventories have repeatedly failed to pass validity checks. One of the reasons for this messy state of affairs is the lack of reliable and objective criteria against which to check the results of an assessment.

But the lack of adequate validation has not prevented the use of, and reliance on, such instruments. Assessment psychologists have always placed more reliance on their instruments than is warranted by the scientific evidence. Both psychologist and client are invariably persuaded by the results that the assessment "works."

This state of affairs, of course, is even more true when we consider divination systems beyond those of the academic and professional psychologist. Every system—be it based on the position of the stars, the pattern of lines in the hand, the shape of the face or skull, the fall of the cards or the dice, the accidents of nature, or the intuitions of a "psychic"—claims its quota of satisfied customers. The client invariably feels satisfied with the results. He is convinced that the reader and the system have penetrated to the core of his "true" self. Such satisfaction on the part of the client also feeds back upon the reader. Even if the reader began his career with little belief in his method, the inevitable reinforcement of persuaded clients increases his confidence in himself and his system. In this way a "vicious circle" is established. The reader and his clients become more and more persuaded that they have hold of a direct pipeline to the "truth."

The state of affairs in which the evaluation of an assessment instrument depends upon the satisfaction of the client is known as "personal validation." Personal validation is, for all practical purposes, the major reason for the persistence of divinatory and assessment procedures. If the client is not persuaded, then the system will not survive. Personal validation, of course, is the basis for the acceptance of more than just assessment instruments. The widespread acceptance of myths about Bigfoot, the Bermuda Triangle, ancient astronauts, ghosts, the validity of meditation and consciousness-raising schemes, and a host of other beliefs is based on persuasion through personal validation rather than scientific conviction.

Cold reading

"Cold reading" is a procedure by which a "reader" is able to persuade a client whom he has never before met that he knows all about the client's personality and problems. At one extreme this can be accomplished

by delivering a stock spiel, or "psychological reading," that consists of highly general statements that can fit any individual. A reader who relies on psychological readings will usually have memorized a set of stock spiels. He then can select a reading to deliver that is relatively more appropriate to the general category that the client fits—a young unmarried girl, a senior citizen, and so on. Such an attempt to fit the reading to the client makes the psychological reading a closer approximation to the true cold reading.

The cold reading, at its best, provides the client with a character assessment that is uniquely tailored to fit him or her. The reader begins with the same assumptions that guide the psychological reader who relies on the stock spiel. These assumptions are (1) that we all are basically more alike than different; (2) that our problems are generated by the same major transitions of birth, puberty, work, marriage, children, old age, and death; (3) that, with the exception of curiosity seekers and troublemakers, people come to a character reader because they need someone to listen to their conflicts involving love, money, and health. The cold reader goes beyond these common denominators by gathering as much additional information about the client as possible. Sometimes such information is obtained in advance of the reading. If the reading is through appointment, the reader can use directories and other sources to gather information. When the client enters the consulting room, an assistant can examine the coat left behind (and often the purse as well) for papers, notes, labels, and other such cues about socioeconomic status, and so on. Most cold readers, however, do not need such advance information.

The cold reader basically relies on a good memory and acute observation. The client is carefully studied. The clothing—for example, style, neatness, cost, age—provides a host of cues for helping the reader make shrewd guesses about socioeconomic level, conservatism or extroversion, and other characteristics. The client's physical features—weight, posture, looks, eyes, and hands provide further cues. The hands are especially revealing to the good reader. The manner of speech, use of grammar, gestures, and eye contact are also good sources. To the good reader the huge amount of information coming from an initial sizing-up of the client greatly narrows the possible categories into which he classifies clients. His knowledge of actuarial and statistical data about various subcultures in the population already provides him the basis for making an uncanny and strikingly accurate assessment of the client.

But the skilled reader can go much further in particularizing his

reading. He wants to zero in as quickly as possible on the precise problem that is bothering the client. On the basis of his initial assessment he makes some tentative hypotheses. He tests these out by beginning his assessment in general terms, touching upon general categories of problems and watching the reaction of the client. If he is on the wrong track the client's reactions—eye movements, pupillary dilation, other bodily mannerisms—will warn him. When he is on the right track other reactions will tell him so. By watching the client's reactions as he tests out different hypotheses during his spiel, the good reader quickly hits upon what is bothering the customer and begins to adjust the reading to the situation. By this time, the client has usually been persuaded that the reader, by some uncanny means, has gained insights into the client's innermost thoughts. His guard is now down. Often he opens up and actually tells the reader, who is also a good listener, the details of his situation. The reader, after a suitable interval, will usually feed back the information that the client has given him in such a way that the client will be further amazed at how much the reader "knows" about him. Invariably the client leaves the reader without realizing that everything he has been told is simply what he himself has unwittingly revealed to the reader.

The stock spiel

The preceding paragraphs indicate that the cold reader is a highly skilled and talented individual. And this is true. But what is amazing about this area of human assessment is how successfully even an unskilled and incompetent reader can persuade a client that he has fathomed the client's true nature. It is probably a tribute to the creativeness of the human mind that a client can, under the right circumstances, make sense out of almost any reading and manage to fit it to his own unique situation. All that is necessary is that the reader make out a plausible case for why the reading ought to fit. The client will do the rest.

You can achieve a surprisingly high degree of success as a character reader even if you merely use a stock spiel which you give to every client. Sundberg (1955), for example, found that if you deliver the following character sketch to a college male, he will usually accept it as a reasonably accurate description of himself: "You are a person who is very normal in his attitudes, behavior and relationships with people. You get along well without effort. People naturally like you and you are not overly critical of them or yourself. You are neither overly conventional nor overly individu-

alistic. Your prevailing mood is one of optimism and constructive effort, and you are not troubled by periods of depression, psychosomatic illness or nervous symptoms."

Sundberg found that the college female will respond with even more pleasure to the following sketch: "You appear to be a cheerful, well-balanced person. You may have some alternation of happy and unhappy moods, but they are not extreme now. You have few or no problems with your health. You are sociable and mix well with others. You are adaptable to social situations. You tend to be adventurous. Your interests are wide. You are fairly self-confident and usually think clearly."

Sundberg conducted his study over 20 years ago. But the sketches still work well today. Either will tend to work well with both sexes. More recently, several laboratory studies have had excellent success with the following stock spiel (Snyder and Shenkel 1975):

> Some of your aspirations tend to be pretty unrealistic. At times you are extroverted, affable, sociable, while at other times you are introverted, wary and reserved. You have found it unwise to be too frank in revealing yourself to others. You pride yourself on being an independent thinker and do not accept others' opinions without satisfactory proof. You prefer a certain amount of change and variety, and become dissatisfied when hemmed in by restrictions and limitations. At times you have serious doubts as to whether you have made the right decision or done the right thing. Disciplined and controlled on the outside, you tend to be worrisome and insecure on the inside.
>
> Your sexual adjustment has presented some problems for you. While you have some personality weaknesses, you are generally able to compensate for them. You have a great deal of unused capacity which you have not turned to your advantage. You have a tendency to be critical of yourself. You have a strong need for other people to like you and for them to admire you.

Interestingly enough the statements in this stock spiel were first used in 1948 by Bertram Forer (1949) in a classroom demonstration of personal validation. He obtained most of them from a newsstand astrology book. Forer's students, who thought the sketch was uniquely intended for them as a result of a personality test, gave the sketch an average rating of 4.26 on a scale of 0 (poor) to 5 (perfect). As many as 16 out of his 39 students (41 percent) rated it as a perfect fit to their personality. Only five gave it a rating below 4 (the worst being a rating of 2, meaning "average"). Almost 30 years later students give the same sketch an almost identical rating as a unique description of themselves.

The technique in action

The acceptability of the stock spiel depends upon the method and circumstances of its delivery. As we shall later see, laboratory studies have isolated many of the factors that contribute to persuading clients that the sketch is a unique description of themselves. A great deal of the success of the spiel depends upon "setting the stage." The reader tries to persuade the client that the sketch is tailored especially for him or her. The reader also creates the impression that it is based on a reliable and proven

Fortune Cookies

Philip J. Klass

Those who enjoy Chinese food cannot resist reading the contents of the fortune cookie delivered with the check, and I'm no exception. For many years I put no more stock in the predictions of fortune cookies than I put in astrological charts. But circumstances have now forced me to revise this earlier erroneous appraisal.

My conversion started during the time that I was writing my first book while simultaneously holding down a full-time position; I had begun to despair that I had undertaken too much. Then my spirits were buoyed by a fortune cookie that said: "Cheer up, the end is in sight." *Soon the manuscript was completed and a tremendous load had been lifted.*

A few months later my fortune cookie predicted: "You will soon be invited to a party." *Because I abhor parties like Nature abhors a vacuum, I probably receive no more than two such invitations a year. Certainly this fortune cookie forecast would turn out to be a "bummer."*

Yet that very evening as I walked into my apartment, the telephone was ringing. When I answered I found that the caller was a woman I had met only briefly more than a year earlier. She was calling to invite me to a party!

A few months later, while lunching in my favorite Chinese restaurant, I found myself seated next to an attractive Chinese

assessment procedure. The way the sketch is delivered and dramatized also helps. And many of the rules that I give for the cold reading also apply to the delivery of the stock spiel.

The stock spiel, when properly delivered, can be quite effective. In fact, with the right combination of circumstances the stock spiel is often accepted as a perfect and unique description by the client. But, in general, one can achieve even greater success as a character analyst if one uses the more flexible technique of the cold reader. In this method one plays a sort of detective role in which one takes on the role of a Sherlock Holmes. (See

woman, also eating alone. When she chanced to compliment me on my use of chopsticks, a conversation ensued. It matured rapidly when I learned she was a divorcée.

When our fortune cookies arrived I opened mine first. It read: "A rewarding friendship will soon develop." *Hers read:* "Look forward to many pleasures ahead." *My prediction proved quite accurate. It would be indelicate for me to comment on the accuracy of hers.*

More recently, less than ten days before I was scheduled to depart for a ski vacation in Colorado, I opened my fortune cookie to find the following message: "You will have a trip, but see that you keep on your feet." *That is precisely what a skier tries to do.*

I must admit that I once received a fortune cookie prediction stating that "Your mate will have a surprise for you tonight." *My initial reaction was that I might meet and marry my "dream girl" before the day was out. When that did not materialize, it did not shake my faith in fortune cookies. Instead, I attribute this to a simple human error on the part of my waiter—who goofed in his selection process.*

Eventually the scientific community will awaken to the remarkable prescience of Chinese fortune cookies and will launch an investigation into the underlying principles. When this occurs it may be found that this remarkable property is the result of a heretofore unknown reaction between the subatomic particles of the flour used in the cookies and the ink used to print the message. But I admit this is a speculative hypothesis.

the "Case of the Cardboard Box" for an excellent example of cold reading.) One observes the jewelry, prices the clothing, evaluates the speech mannerisms, and studies the reactions of the subject. Then whatever information these observations provide is pieced together into a character reading which is aimed more specifically at the particular client.

A good illustration of the cold reader in action occurs in a story told by the well-known magician John Mulholland. The incident took place in the 1930s. A young lady in her late twenties or early thirties visited a character reader. She was wearing expensive jewelry, a wedding band, and a black dress of cheap material. The observant reader noted that she was wearing shoes which were currently being advertised for people with foot trouble. (Pause at this point and imagine that you are the reader; see what you would make of these clues.)

By means of just these observations the reader proceeded to amaze his client with his insights. He assumed that this client came to see him, as did most of his female customers, because of a love or financial problem. The black dress and the wedding band led him to reason that her husband had died recently. The expensive jewelry suggested that she had been financially comfortable during marriage, but the cheap dress indicated that her husband's death had left her penniless. The therapeutic shoes signified that she was now standing on her feet more than she was used to, implying that she was working to support herself since her husband's death.

The reader's shrewdness led him to the following conclusion—which turned out to be correct: The lady had met a man who had proposed to her. She wanted to marry the man to end her economic hardship. But she felt guilty about marrying so soon after her husband's death. The reader told her what she had come to hear—that it was all right to marry without further delay.

The rules of the game

Whether you prefer to use the formula reading or to employ the more flexible technique of the cold reader, the following bits of advice will help to contribute to your success as a character reader.

1. *Remember that the key ingredient of a successful character reading is confidence.* If you *look* and *act* as if you believe in what you are doing, you will be able to sell even a bad reading to most of your subjects.

The laboratory studies support this rule. Many readings are accepted

as accurate because the statements do fit most people. But even readings that would ordinarily be rejected as inaccurate will be accepted if the reader is viewed as a person with prestige or as someone who knows what he is doing.

One danger of playing the role of reader is that you will persuade yourself that you really are divining true character. This happened to me. I started reading palms when I was in my teens as a way to supplement my income from doing magic and mental shows. When I started I did not believe in palmistry. But I knew that to "sell" it I had to act as if I did. After a few years I became a firm believer in palmistry. One day the late Dr. Stanley Jaks, who was a professional mentalist and a man I respected, tactfully suggested that it would make an interesting experiment if I deliberately gave readings opposite to what the lines indicated. I tried this out with a few clients. To my surprise and horror my readings were just as successful as ever. Ever since then I have been interested in the powerful forces that convince us, reader and client alike, that something is so when it really isn't.

2. *Make creative use of the latest statistical abstracts, polls, and surveys.* This can provide you with a wealth of material about what various subclasses of our society believe, do, want, worry about, and so on. For example if you can ascertain about a client such things as the part of the country he comes from, the size of the city he was brought up in, his parents' religion and vocations, his educational level and age, you already are in possession of information that should enable you to predict with high probability his voting preferences, his beliefs on many issues, and other traits.

3. *Set the stage for your reading.* Profess a modesty about your talents. Make no excessive claims. This catches your subject off guard. You are not challenging him to a battle of wits. You can read his character; whether he cares to believe you or not is his concern.

4. *Gain his cooperation in advance.* Emphasize that the success of the reading depends as much upon his sincere cooperation as upon your efforts. (After all, you imply, you already have a successful career at reading characters. You are not on trial—he is.) State that due to difficulties of language and communication, *you may not always convey the exact meaning which you intend.* In these cases he is to strive to reinterpret the message in terms of his own vocabulary and life.

You accomplish two invaluable ends with this dodge. You have an alibi in case the reading doesn't click; it's his fault, not yours! And your

subject will strive to fit your generalities to his specific life occurrences. Later, when he recalls the reading he will recall it in terms of specifics; thus you gain credit for much more than you actually said.

Of all the pieces of advice this is the most crucial. To the extent that the client is made an active participant in the reading the reading will succeed. The good reader, deliberately or unwittingly, is the one who forces the client to actively search his memory to make sense of the reader's statements.

5. *Use a gimmick such as a crystal ball, tarot cards, or palm reading.* The use of palmistry, say, serves two useful purposes. It lends an air of novelty to the reading; but, more important, it serves as a cover for you to stall and to formulate your next statement. While you are trying to think of something to say next, you are apparently carefully studying a new wrinkle or line in the hand. Holding hands, in addition to any emotional thrills you may give or receive thereby, is another good way of detecting the reactions of the subject to what you are saying (the principle is the same as "muscle reading").

It helps, in the case of palmistry or other gimmicks, to study some manuals so that you know roughly what the various diagnostic signs are supposed to mean. A clever way of using such gimmicks to pin down a client's problem is to use a variant of "Twenty Questions," somewhat like this: Tell the client you have only a limited amount of time for the reading. You could focus on the heart line, which deals with emotional entanglements; on the fate line, which deals with vocational pursuits and money matters; the head line, which deals with personal problems; the health line, and so on. Ask him or her which one to focus on first. This quickly pins down the major category of problem on the client's mind.

6. *Have a list of stock phrases at the tip of your tongue.* Even if you are doing a cold reading, the liberal sprinkling of stock phrases amidst your regular reading will add body to the reading and will fill in time as you try to formulate more precise characterizations. You can use the statements in the preceding stock spiels as a start. Memorize a few of them before undertaking your initial ventures into character reading. Palmisty, tarot, and other fortune-telling manuals also are rich sources for good phrases.

7. *Keep your eyes open.* Also use your other senses. We have seen how to size up the client on the basis of clothing, jewelry, mannerisms, and speech. Even a crude classification on such a basis can provide sufficient information for a good reading. Watch the impact of your statements upon the subject. Very quickly you will learn when you are "hitting home"

and when you are "missing the boat."

8. *Use the technique of "fishing."* This is simply a device for getting the subject to tell you about himself. Then you rephrase what he has told you into a coherent sketch and feed it back to him. One version of fishing is to phrase each statement in the form of a question. Then wait for the subject to reply (or react). If the reaction is positive, then the reader turns the statement into a positive assertion. Often the subject will respond by answering the implied question and then some. Later he will tend to forget that he was the source of your information. By making your statements into questions you also force the subject to search through his memory to retrieve specific instances to fit your general statement.

9. *Learn to be a good listener.* During the course of a reading your client will be bursting to talk about incidents that are brought up. The good reader allows the client to talk at will. On one occasion I observed a tea-leaf reader. The client actually spent 75 percent of the total time talking. Afterward when I questioned the client about the reading she vehemently insisted that she had not uttered a single word during the course of the reading. The client praised the reader for having so astutely told her what in fact she herself had spoken.

Another value of listening is that most clients who seek the services of a reader actually want someone to listen to their problems. In addition many clients have already made up their minds about what choices they are going to make. They merely want support to carry out their decision.

10. *Dramatize your reading.* Give back what little information you do have or pick up a little bit at a time. Make it seem more than it is. Build word pictures around each divulgence. Don't be afraid of hamming it up.

11. *Always give the impression that you know more than you are saying.* The successful reader, like the family doctor, always acts as if he knows much more. Once you persuade the client that you know one item of information about him that you could not possibly have obtained through normal channels, the client will automatically assume you know all. At this point he will typically open up and confide in you.

12. *Don't be afraid to flatter your subject every chance you get.* An occasional subject will protest such flattery, but will still cherish it. In such cases you can further flatter him by saying, "You are always suspicious of people who flatter you. You just can't believe that someone will say good of you unless he is trying to achieve some ulterior goal."

13. Finally, remember the golden rule: *Tell the client what he wants to hear.*

Sigmund Freud once made an astute observation. He had a client who had been to a fortune-teller many years previously. The fortune-teller had predicted that she would have twins. Actually she never had children. Yet, despite the fact that the reader had been wrong, the client still spoke of her in glowing terms. Freud tried to figure out why this was so. He finally concluded that at the time of the original reading the client wanted desperately to have children. The fortune-teller sensed this and told her what she wanted to hear. From this Freud inferred that the successful fortune-teller is one who predicts what the client secretly wishes to happen rather than what actually will happen (Freud 1933).

The fallacy of personal validation

As we have seen, clients will readily accept stock spiels such as those I have presented as unique descriptions of themselves. Many laboratory experiments have demonstrated this effect. Forer (1949) called the tendency to accept as valid a personality sketch on the basis of the client's willingness to accept it "the fallacy of personal validation."

The early studies on personal validation were simply demonstrations to show that students, personnel directors, and others can readily be persuaded to accept a fake sketch as a valid description of themselves. A few studies tried to go beyond the demonstration and tease out factors that influence the acceptability of the fake sketch. Sundberg (1955), for example, gave the Minnesota Multiphasic Personality Inventory (known as the MMPI) to 44 students. The MMPI is the most carefully standardized personality inventory in the psychologist's tool kit. Two psychologists, highly experienced in interpreting the outcome of the MMPI, wrote a personality sketch for each student on the basis of his or her test results. Each student then received two personality sketches—the one actually written for him or her and a fake sketch. When asked to pick which sketch described him or her better, 26 of the 44 students (59 percent) picked the fake sketch!

Sundberg's study highlights one of the difficulties in this area. A fake, universal sketch can be seen as a better description of oneself than can a uniquely tailored description by trained psychologists based upon one of the best assessment devices we have. This makes personal validation a completely useless procedure. But it makes the life of the character reader and the pseudopsychologist all the easier. His general and universal statements have more persuasive appeal than do the best and most appropriate

descriptions that the trained psychologist can come up with.

Some experiments that my students and I conducted during the 1950s also supplied some more information about the acceptability of such sketches. In one experiment we gave some students a fake sketch (the third stock spiel previously discussed) and told half of them that it was the result of an astrological reading and the other half that it was the result of a new test, the Harvard Basic Personality Profile. In those days, unlike today, students had a low opinion of astrology. All the students rated each of the individual statements as generally true of themselves. The groups did not differ in their ratings of the acceptability of the individual statements. But when asked to rate the sketch as a whole, the group that thought it came from an accepted personality test rated the acceptability significantly higher than did the group that thought it came from an astrologer. From talking to individual students it was clear that those who were in the personality-test group believed that they had received a highly accurate and unique characterization of themselves. Those in the astrology group admitted that the individual statements were applicable to themselves but dismissed the apparent success of the astrologer as due to the fact that the statements were so general that they would fit anyone. In other words, by changing the context in which they got the statements we were able to manipulate the subjects' perceptions as to whether the statements were generalities that applied to everyone or were specific characterizations of themselves.

In a further experiment we obtained a pool of items that 80 percent or more of Harvard students endorsed as true of themselves. We then had another group of Harvard students rate these items as "desirable" or "undesirable" and as "general" or "particular" (true of only a few students). Thus we had a set of items that we knew almost all our subjects would endorse as true of themselves, but which varied on desirability and on perceived generality. We were then able to compose fake sketches which varied in their proportion of desirable and specific items. We found that the best recipe for creating acceptable stock spiels was to include about 75 percent desirable items, but ones which were seen as specific, and about 25 percent undesirable items, but ones which were seen as general. The undesirable items had the apparent effect of making the spiel plausible. The fact that the items were seen as being generally true of other students made them more acceptable.

The most extensive program of research to study the factors making for acceptability of fake sketches is that by C. R. Snyder and his associates

at the University of Kansas. A brief summary of many of his findings was given in an article in *Psychology Today* (Snyder and Shenkel 1975). In most of his studies Snyder uses a control condition in which the subject is given the fake sketch and told that this sketch is generally true for all people. On a rating scale from 1 to 5 (1, very poor; 2, poor; 3, average; 4, good; 5, excellent) the subject rates how well the interpretation fits his personality. A typical result for this control condition is a rating of around 3 to 4, or between average and good. But when the sketch is presented to the subject as one which was written "for you, personally," the acceptability tends to go up to around 4.5, or between good and excellent.

In a related experiment the subjects were given the fake sketch under the pretense that it was based on an astrological reading. The control group, given the sketch as "generally true for all people," rated it about 3.2, or just about average. A second group was asked to supply the astrologer with information on the year and month of their birth. When they received their sketches they rated them on the average at 3.76, or just below good. A third group supplied the mythical astrologer with information on year, month, and day of birth. These subjects gave a mean rating of 4.38.

From experiments such as those we have learned the following. The acceptability of a general sketch is enhanced when (1) the reader or source is believed to know what he is doing, (2) the instrument or assessment device is plausible, (3) a lot of mumbo jumbo is associated with the procedure (such as giving month, day, hour, and minute of birth along with a lot of complicated calculations), and (4) the client is led to believe that the sketch has been tailored to his personality. When these conditions are met, the client, and possibly the reader as well, have a strong "illusion of uniqueness"—that is, the client is persuaded that the sketch describes himself or herself and no one else.

Why does it work?

But why does it work? And why does it work so well? It does not help to say that people are gullible or suggestible. Nor can we dismiss it by implying that some individuals are just not sufficiently discriminating or lack sufficient intelligence to see through it. Indeed one can argue that it requires a certain degree of intelligence on the part of a client for the reading to work well. Once the client is actively engaged in trying to make sense of the series of sometimes contradictory statements issuing from the

reader, he becomes a creative problem-solver trying to find coherence and meaning in the total set of statements. The task is not unlike that of trying to make sense of a work of art, a poem, or, for that matter, a sentence. The work of art, the poem, or the sentence serve as a blueprint or plan from which we can construct a meaningful experience by bringing to bear our own past experiences and memories.

In other words the reading succeeds just because it calls upon the normal processes of comprehension that we ordinarily bring to bear in making sense out of any form of communication. The raw information in a communication is rarely, if ever, sufficient in itself for comprehension. A shared context and background is assumed. Much has to be filled in by inference. The good reader, like anyone who manipulates our perceptions, is merely exploiting the normal processes by which we make sense out of the disorderly array of inputs that constantly bombard us.

A variety of examples and experiments could be drawn upon to illustrate this point. Let us look at a couple of instructive cases. Dr. Joseph Weizenbaum, of M.I.T., developed a computer program that would enable a human to apparently carry on a conversation with a computer. One version of his program is called "Doctor." The program is designed to "talk" like a Rogerian psychotherapist. Such a therapist is relatively easy to imitate because the basis of Rogers' technique is simply to feed the patient's statements back to him in a paraphrased form. The human, playing the role of the patient, types in questions and answers on a teletype machine. The computer, under control of the program, types replies and questions on the same teletype paper. A typical example (Weizenbaum 1976) of a conversation between a young lady and Doctor follows. (The lady speaks first. The computer's responses are printed in italics.)

Men are all alike.
In what way?
They're always bugging us about something or other.
Can you think of a specific example?
Well, my boyfriend made me come here.
Your boyfriend made you come here?
He says I'm depressed much of the time.
I am sorry to hear you are depressed.
It's true. I am unhappy.
Do you think coming here will help you not to be unhappy?
I need some help, that much seems certain.
What would it mean to you if you got some help?

Perhaps I could learn to get along with my mother.
Tell me more about your family.
My mother takes care of me.
Who else in your family takes care of you?
My father.
Your father?
You are like my father in some ways.
What resemblance do you see?
You are not very aggressive, but I think you don't want me to notice that.
What makes you think I am not very aggressive?
You don't argue with me.
Why do you think I don't argue with you?
You are afraid of me.
Does it please you to believe I am afraid of you?
My father is afraid of everybody.
What else comes to mind when you think of your father?
Bullies.
Does that have anything to do with the fact that your boyfriend made you come here?

Doctor is a quite primitive program as natural-language programs go. It employs a lot of tricks and stock phrases. It has no mechanisms for actually understanding sentences. Instead it seeks out key words that are typed and does some simple syntactical transformations. For example, if the program sees a sentence of the form "Do you X" it automatically prints out the response "What makes you think I X?" When Doctor cannot match the syntax of a given sentence it can cover up in two ways. It can say something noncommittal, such as *"Please go on"* or *"What does that suggest to you?"* Or it can recall an earlier match and refer back to it, as for example, *"How does this relate to your depression?"* where depression was an earlier topic of conversation.

In essence Doctor is a primitive cold reader. It uses stock phrases to cover up when it cannot deal with a given question or input. And it uses the patient's own input to feed back information and create the illusion that it understands and even sympathizes with the patient. This illusion is so powerful that patients, even when told they are dealing with a relatively simple-minded program, become emotionally involved in the interaction. Many refuse to believe that they are dealing with a program and insist that a sympathetic human must be at the controls at the other end of the teletype.

Sociologist Harold Garfinkel has supplied another instructive example (1967). He conducted the following experiment. The subjects were told

that the Department of Psychiatry was exploring alternative means to therapy "as a way of giving persons advice about their personal problems." Each subject was then asked to discuss the background of some serious problem on which he would like advice. After having done this the subject was to address some questions which could be answered "yes" or "no" to the "counselor" (actually an experimenter). The experimenter-counselor heard the questions from an adjoining room and supplied a "yes" or "no" answer to each question after a suitable pause. Unknown to the subject, the series of yes-no answers had been preprogrammed according to a table of random numbers and was not related to his questions. Yet the typical subject was sure that the counselor fully understood the subject's problem and was giving him sound and helpful advice.

Let me emphasize again that statements as such have no meaning. They convey meaning only in context and only when the listener or reader can bring to bear his large store of worldly knowledge. Clients are not necessarily acting irrationally when they find meaning in the stock spiels or cold readings. Meaning is an interaction of expectations, context, memory, and given statements. An experiment by the Gestalt psychologist Solomon Asch (1948) will help make this point. Subjects were given the following passage and asked to think about it: "I hold it that a little rebellion, now and then, is a good thing, and as necessary in the political world as storms are in the physical." One group of subjects was told that the author of the passage was Thomas Jefferson (which happens to be true). The subjects were asked if they agreed with the passage and what it meant to them. These subjects generally approved of it and interpreted the word *rebellion* to mean minor agitation. But when subjects were given the same passage and told that its author was Lenin, they disagreed with it and interpreted *rebellion* to mean a violent revolution.

According to some social psychologists the different reactions show the irrationality of prejudice. But Asch points out that the subjects could be acting quite rationally. Given what they know about Thomas Jefferson and Lenin, or what they believe about them, it makes sense to attribute different meanings to the same words spoken by each of them. If one thinks that Jefferson believed in orderly government and peaceful processes, then it would not make sense to interpret his statement to actually mean a bloody or physical revolution. If one thinks that Lenin favors war and bloodshed, then it makes sense, when the statement is attributed to him, to interpret *rebellion* in its more extreme form.

Some recent research that my colleagues and I conducted might also be relevant here. Our subjects were given the task of forming an impression of a hypothetical individual on the basis of a brief personality sketch. In one condition the subjects were given a sketch that generally led to an impression of a nice, personable, friendly sort of fellow. In a second condition the subjects were given a sketch that created an impression of a withdrawn, niggardly individual. Both groups of subjects were then given a new sketch that supposedly contained more information about the hypothetical individual. In both cases the subjects were given an identical sketch. This sketch contained some descriptors that were consistent with the friendly image and some that were consistent with the niggardly image. The subjects were later tested to see how well they recognized the actual adjectives that were used in the second sketch. One of the adjectives, for example, was *charitable*. The test contained foils for each adjective. For example, the word *generous* also appeared on the test but did not appear in the sketch. Yet subjects who had been given the friendly impression checked *generous* just as frequently as they checked *charitable*. But subjects in the other condition did not confuse *charitable* with *generous*. Why? Because, we theorize, the two different contexts into which *charitable* had to be integrated produced quite different meanings. When subjects who have already built up an impression of a "friendly" individual encounter the additional descriptor *charitable*, it is treated as merely further confirmation of their general impression. In that context *charitable* is simply further confirmation of the nice-guy image. Consequently when these subjects are asked to remember what was actually said, they can remember only that the individual was further described in some way to enhance the good-guy image, and *generous* is just as good a candidate for the description as is *charitable* in that context.

But when the subjects who have an image of the person as a withdrawn, niggardly individual encounter *charitable*, the last thing that comes to mind is generosity. Instead, they probably interpret *charitable* as implying that he donates money to charities as a way of gaining tax deductions. In this latter condition the subjects have no subsequent tendency to confuse *charitable* with *generous*.

The cold reading works so well, then, because it taps a fundamental and necessary human process. We have to bring our knowledge and expectations to bear in order to comprehend anything in our world. In most ordinary situations this use of context and memory enables us to correctly interpret statements and supply the necessary inferences to do

this. But this powerful mechanism can go astray in situations where there is no actual message being conveyed. Instead of picking up random noise we still manage to find meaning in the situation. So the same system that enables us to creatively find meanings and make new discoveries also makes us extremely vulnerable to exploitation by all sorts of manipulators. In the case of the cold reading the manipulator may be conscious of his deception; but often he, too, is a victim of personal validation.

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The Development of the Transcendental Meditation Movement

Eric Woodrum

The Transcendental Meditation movement is now growing at a rapid and accelerating rate in this country. Since its emergence in the late 1950s the expansion of this movement has been markedly uneven in terms of numbers of initiations, organizational growth, and support in various strata and sectors of American society. This essay describes and examines the Transcendental Meditation (TM) movement's particular pattern of growth in light of three developmental periods in the movement's history and of two subpopulations in the movement.

Methodology

The following analysis of the Transcendental Meditation movement is based on my participant observation and hermeneutical study of the movement. I initially became involved with the TM movement over six years ago. I maintained close contact with and researched the movement between August 1974 and August 1975. Following Buford Junker's (1960) typology of forms of participant observation, my activities are best characterized as "participant as observer." Consistent with the profile Junker outlines for this role, intentions as a researcher were disclosed to a limited number of persons in the movement, who were fully accepting of them. At the same time my activities as an observer were subordinated to my activities as a participant within the context of the movement. In the course of participant observation I took part in formal classes, lectures, videotape and audiotape presentations, meetings, and informal interactions, discussions, and activities associated with the TM movement (see Woodrum 1975, pp. 57-62). My efforts in these contexts were informed by Severyn

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Bruyn's (1966) discussion of the "knowledge of meanings" sought by the participant observer.

Hermeneutics is the study of the methodological principles of interpretation. Objective expressions or texts are studied in an effort to reconstruct the mental processes of their creators. The textual basis for this hermeneutical study of the TM movement was twofold. First, I analyzed a collection of pamphlets, books, videotapes and audiotapes of talks, and written transcriptions of talks and question-and-answer sessions produced by organizations and individuals in the TM movement since its emergence. The second textual basis for this study was newsletters, mailouts, and other written announcements from a TM center over the past six years. During this period the center was established and became a major base of operations for the movement in the Southwest. By comparing chronologically the various texts from both sources it is possible to identify trends in the movement's belief system and organization and to reconstruct aspects of its development from the late 1950s to the present.

Three phases in the movement's development

The first developmental period in the TM movement's history extends from 1959 to 1965 and might be called the Spiritual-Mystical Period. During these years the movement operated through the first organization for the spread of TM, the Spiritual Regeneration Movement (SRM). Evidence suggests that participants in the movement during this period were, for the most part, middle- and upper-middle-class business and professional persons united by a general interest in spiritual growth and mysticism (see Maharishi 1961). TM was interpreted as the most important component of a holistic program for spiritual evolution, nonattachment to the relative, material realm, eventual liberation from the cycle of rebirth, and attainment of nirvana. Other components of this rather traditional vedic program included the daily performance of yoga asanas (physical postures), prana yoga (breathing exercises), and the silent recitation of a brief prayer (Maharishi 1962, pp. 3-9). Dietary practices (Maharishi 1966, pp. 124-25) and periodic attendance at meditation residence courses also contributed to the "purifying effects" of TM (Maharishi 1967, p. 347).

The TM movement began as and has remained an urban phenomenon, most successful in technologically developed societies. Only in recent years, following its acceptance in the West, has the movement begun to win significant support in India and a few other Third World

countries. It was in India that the movement's founder and leader, Maharishi Mahesh Yogi, first tried to establish the practice of TM, following the death of his guru and an appropriate period of solitary contemplation in the Himalayas. After a few years of teaching the technique in southern India, Maharishi concluded that the movement's growth rate was too slow and that he should take his teaching to the West, "where people are in a habit of adopting things quickly" (Maharishi, in Ebon 1968, p. 10).

During the first developmental period the TM movement emphasized attainment of traditional Hindu, otherworldly goals through a holist yogic program (Maharishi 1967, pp. 132-3, 331-2). The movement was one among many marginal "Eastern, spiritual" groups appealing to only a small number of adherents. At the end of 1965 only one teacher of TM and approximately 220 practitioners lived in the United States (Forem 1973, p. 217).

The second developmental phase, extending from 1966 to 1969, might be referred to as the Voguish, Self-Sufficiency Period. During these years the TM movement expanded rapidly into two new population bases and won publicity by temporarily identifying with aspects of the counterculture. The expanding young segment of American society antipathetic to the dominant material and spiritual institutions was intentionally sought after by leaders of the movement (Ebon 1968). At the same time individuals in the general public who were less mystically oriented than were members of the Spiritual Regeneration Movement were solicited. The TM movement's approach to these two sources of initiates entailed organizational specialization, a strategy which is characteristic of the movement. The Students International Meditation Society (SIMS) was founded in 1966 to address student-aged audiences with a program and interpretation of TM adapted especially for them. Within a year the International Meditation Society (IMS) was established to present a more reserved, relatively popularized version of the movement to the general public (see Schneider and Dornbusch 1958). Since the organization of SIMS and IMS the Spiritual Regeneration Movement has been progressively pushed into the background as an embarrassing reminder of the unreservedly spiritual roots of the TM movement.

During the Voguish, Self-Sufficiency Period the traditional Hindu understanding of the goals and effects of TM were significantly modified. The goal of "cosmic consciousness" was described in terms of bliss, energy, and peace without reference to the loss of the individual ego or the

serious implications of nonattachment to the relative, material realm (see Maharishi, in Ebon 1968, pp. 136-9). The themes of spiritual self-sufficiency, reductionism, and mentalism made the practice of TM the vogue of a spiritually inclined avant-garde in the late 1960s. During these years the movement expanded rapidly, so that by the end of 1968 approximately 12,000 transcendental meditators and 200 teachers of TM lived in the United States.

The success of the TM movement in expanding into the young, counterculture population during this period was promoted by publicity that TM and the movement's founder, Maharishi Mahesh Yogi, received after several prominent entertainers began practicing the technique. The fruitful association with the counterculture was severed in 1969, which marked the end of the second developmental period in the movement's history.

Two events occurred at this time which pressured the movement to redefine itself and reappraise its primary audiences. These events were the termination, because of lack of attendance, of a rock-concert-cum-TM-lecture-tour by Maharishi and bitter criticism of him as materalistic by well-known counterculture spokesmen. With the waning of the counterculture and a general constriction of the "market" for meditative and other spiritual groups at the close of the 1960s, the TM movement experienced a crisis. However, this movement has been able to do what most of its competitors have not proven capable of, namely, changing its public image and expanding again in the 1970s through a new strategy for recruitment.

The third phase in the movement's history, the Secularized, Popular-Religious Period, began in 1970 and continues to the present. To overcome the taint of faddishness incurred during the late 1960s, the current strategy of the movement emphasizes the practical physiological, material, and social benefits of TM for conventional persons, with almost no otherworldly references (see, for example, Fundamentals of Progress 1974). The movement produces a steady stream of evidence of "scientific validation" of the merits of TM through a new organizational arm, Maharishi International University (MIU). MIU embodies the rationalized professionalism of the contemporary TM movement with its staff of Ph.D. meditator-researchers and extensive printing and publicity facilities (see Maharishi International University Catalog 1974). TM is also promoted in the commercial and governmental sectors through the American Foundation for the Science of Creative Intelligence and the World Plan Executive

Council. The tendency of the movement toward organizational multiplication and specialization has been greatly accentuated by its recent successes. For example, an organization now exists in the movement to encourage the practice of TM by professional athletes.

Currently there are over 7,000 trained teachers of TM in the United States. In the past year alone over 300,000 people were initiated into the technique (World Plan Executive Council 1976, pp. 3, 8). Yet even these statistics fail to convey the entrenched and accepted status of the TM movement, which is presently represented in American private industry, public programs in drug abuse, mental health, and rehabilitation, public and private schools and universities, and the U.S. Army, to give only a partial listing (see Bloomfield, et al. 1975).

Two subpopulations in the movement

The present organization of the TM movement builds upon patterns of participation associated with subpopulations of active meditators. The term "active meditators" is used in recognition of the fact that an undetermined number of individuals practice TM following initiation with no further contact with the movement or discontinue using the technique altogether. These individuals may approximate either of the two ideal types to be discussed to the extent that they participate in the TM movement at all. It is hypothesized that the two subpopulations that I have identified hold distinct motivational orientations and attitudes toward the technique of TM and toward the movement's belief system, now known as the Science of Creative Intelligence (SCI). They also see the ultimate significance and potential of the TM movement in rather different terms. For heuristic purposes these two subpopulations, with associated participation patterns, motivations, and attitudes, will be discussed using pure or ideal constructs.

The first subpopulation in the movement approximates an ideal type that I will refer to as "average meditators." This group has been growing steadily as a proportion of the overall movement population during the current Secularized, Popular-Religious Period. Average meditators have practical, utilitarian motivations for practicing TM, which they regard simply as a useful mental exercise. They consider the technique of TM essentially separable from its attendant belief system, in which they have little interest. Members of this subpopulation evaluate TM rationally in terms of tangible costs and benefits. It is their conclusion that the practice

of TM sufficiently contributes to their health, energy, and efficiency in performing other primary tasks to justify the time, expense, and inconvenience of learning and utilizing the technique. These persons characteristically participate in the TM movement through individual and group meditation, regular "checking" of the technique at TM centers, and occasional attendance at advanced lectures and residence courses. It is important to recognize that the average meditators' pattern of participation does not directly promote the further numerical growth of the movement.

The second subpopulation constitutes the "inner movement." As an Ideal Type these individuals have soteriological, metaphysical motivations for practicing TM and participating in the movement. The motivations, attitudes, and participation patterns of persons in the inner movement were dominant in the movement during its Spiritual, Mystical and Voguish, Self-Sufficiency Periods. Members of this subpopulation continue to play a crucial role in the movement during the present Secularized, Popular-Religious Period; but their essentially mystical, salvational orientation is now relatively covert. These individuals regard TM primarily as a path to "cosmic consciousness." They evaluate the technique in metaphysical terms according to the Science of Creative Intelligence, which has profound significance for their personal lives. They believe that the TM movement is a viable vehicle for world transformation in keeping with the seven goals of the World Plan:

1. To develop the full potential of the individual.
2. To improve governmental achievements.
3. To realize the highest ideal of education.
4. To solve the problems of crime and all behavior that brings unhappiness to the family of man.
5. To maximize the intelligent use of the environment.
6. To bring fulfillment to the economic aspirations of the individual and society.
7. To achieve the spiritual goals of mankind in this generation. (Denniston and McWilliams 1975, p. 344)

The characteristic activities of members of the inner movement include those of average meditators as well as others which directly maintain and expand the TM movement organization. As an Ideal Type persons in the inner movement regularly attend and present advanced lectures and

courses on TM and the Science of Creative Intelligence, learn to become and act as meditation "checkers," participate in residence courses as students and instructors, and when possible train to become TM teachers and devote themselves to the movement on a full-time basis.

Empirically, variations and combinations of motivations, attitudes, and participation patterns in the TM movement exist which are not adequately characterized by these two idealized models. But this limitation is inherent in the idealization strategy, which simplifies complex phenomena for purposes of analysis (see Weber 1949, p. 90). Although the idealized model of two subpopulations in the movement has this limitation, it can contribute to an understanding of certain crucial relationships in the movement facilitating its growth and development. For example, this heuristic model explains the high level of dedication, characteristic of members of evangelical religious sects, among "inner movement" persons working to spread the practice of TM. Given the movement's present secularized and popularized recruitment strategy, one can also understand their assertion that they are merely teaching a method of deep rest to individuals (average meditators) who are apparently uninterested in deriving more than that from the technique.

At this point in the TM movement's development the two subpopulations of active meditators make important complementary contributions to the movement's maintenance and growth. The average meditators lend the credibility to the secularized, practical image of TM that is basic to its current broad appeal. Much of the average meditators' significance for the movement lies in their fulfilling the image of "worldly, active, serious-minded persons" described by TM spokespersons as the "average individuals" interested in TM. While the average meditators legitimize the conventional image and practical appeal of the technique, the inner movement is essential to capitalize on that image and appeal. The inner movement supplies the man-hours and dedication that actualizes the TM movement's potential for growth. The designation "inner movement" reflects my belief that within the larger TM movement this subgroup possesses the distinctive characteristics associated with a social movement or instance of collective behavior (cf. Smelser 1962, p. 8).

Conclusions and projections

In this essay I have endeavored to describe and explain the growth and present status of the TM movement with reference to three periods in its

development and two subpopulations of participants. There are four assets or characteristics of the TM movement which in my opinion have contributed most significantly to its success in this country. First, the TM movement has consistently adhered to the tried-and-proven formula of popular religion in this country (see Schneider and Dornbusch 1958), emphasizing individualism, reductionism, optimism, and mentalism (Woodrum 1975, pp. 15-56). Second, its leadership rests in a forceful, charismatic individual capable of inspiring the devotion of the inner-movement subpopulation. Third, the movement has effectively employed the strategy of organizational specialization and ready utilization of communication and public-relations technology. And fourth, the leadership of the movement has shown considerable flexibility and pragmatism. The leadership has initiated and coordinated recruitment strategies and various interpretations of TM and has developed organizational systems when those strategies and interpretations have brought results. It has been prompt either to abandon previous strategies, interpretations, and systems when they ceased working or to isolate them in separate organizational arms when they remained viable for only a segment of the movement. It appears that decisions about strategies and programs to maintain and encourage further growth of the movement have been rationalized to an important extent.

Before concluding this study it might be appropriate to venture a few projections concerning the future of the TM movement. First, I would anticipate that the current popularizing trend in the movement will continue, with a growing acceptance of TM and the SCI by established sectors of technologically advanced societies. This is certainly likely in the United States. Second, the tactic of developing separate organizational arms of the movement for specific populations and functions can be expected to continue. This practice will be continued by the movement's pragmatic leadership because it has been employed successfully in the past.

Although these strategies have served the TM movement well heretofore, I anticipate that eventually they will dialectically inhibit the further growth of the movement. This paradoxical effect will result, I would suggest, when two processes presently embryonic in the movement have developed sufficiently.

The first of these processes is the erosion of the inner movement's dedication to the spread of TM because of the progressive instrumentalization of the technique by the movement's leadership. In popularizing

TM the leaders of the movement are severing the technique from its original metaphysical interpretation. Eventually this separation will advance to the point that the subpopulation of the movement now dedicated to expanding TM on the basis of those metaphysical ties will find little connection between their underpaid work for the movement and achieving the metaphysical ends they are seeking. The movement will then begin suffering from a lack of what has been one of its strongest assets, a large number of highly motivated inner-movement workers.

The second of the dialectical hazards in the movement's future will result from the strategy of organizational specialization. The organizational proliferation of this international movement is accelerating, and it is doubtful whether Maharishi or any central authority will long be able to unite and coordinate its widely dispersed efforts. If the predicted shortage of workers in local centers comes about, the organizations of the TM movement will become top heavy and lose their flexibility and cohesion. But this grim forecast may fail to do justice to the resourcefulness of this particular social movement. In summary, I anticipate that the TM movement will stabilize as a denominational popular religion.

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A Statistical Test of Sun-Sign Astrology

John D. McGervey

It has been said that the basic premise of astrology is that the stars and planets can influence terrestrial processes. If astrology did indeed develop from such a premise by careful observations followed by testing of results against predictions in a scientific way, one could have no quarrel with it. Nobody denies that extraterrestrial influences exist.

We could even accept the fact that astrologers can identify no known physical mechanism on which to base their predictions. If the predictions of astrology come true, then the subject cannot be dismissed, even though the basis of the prediction is not understood. However, the bases of astrological predictions are so far removed from any logical cause-and-effect relationship that it becomes difficult for any logical thinker to remain open-minded. The predictions are not based on any observable or even hypothetical physical *process*; instead they are often based on superficial aspects of the appearance of celestial objects. For example, Mars is red and blood is red, so Mars has something to do with blood, and by extension, Mars governs (in some vague sense) warfare and combat.

If we try to discredit astrology simply by pointing to the stupidity of this sort of reasoning, we run the risk of being considered closed-minded. Since advances in science are often based on ideas that seem stupid when they are first proposed, we should apply unbiased tests to the *results* of a theory and not apply value judgments to the reasoning that leads to these results. Who knows? Maybe by some curious coincidence the planet Mars does have something to do with warfare.

Unfortunately it is hard to evaluate the various "one-shot" predictions that astrologers make, because nobody knows what would be a good percentage of successful predictions; there are no standards of performance, and any particular failure can be attributed to an individual astrologer's mistake rather than to the "science" of astrology. However, there

are some predictions, applicable to the entire population, that result from the drawing up of horoscopes. A number of tests of planetary and solar influences in horoscopes have been reported, but all appear to suffer from either a small sample or the possibility that the cause-and-effect relation has been incorrectly diagnosed. For example, effects claimed to be associated with the rising of one of the planets could be, and probably are, the result of the fact that more people are born in the morning hours than in the evening hours (Jerome 1976).

Tests of planetary influence are difficult because of the necessity of knowing the exact time of birth as well as the date, so such tests always involve a relatively small population. It is clear that in a small number of people one can always find common traits that one can then attribute to some astrological phenomenon; even Adolf Hitler and Julie Andrews probably have some traits in common. But one element of a horoscope that can be tested with good statistics using readily available information is the effect of the "sun sign." Although "serious" astrologers say that the sun sign is simply one component of a horoscope and that the "ascendant" and planetary influences are equally or even more important, to my knowledge they have never said that the sun sign has no influence whatsoever. They may say, for example, that sun-sign astrology as given in newspapers does not *completely* determine one's destiny, but they still refer to the *influence* of the sun. Clearly, if the sun has any influence at all, it should be detectable in a large enough population.

To test the effect of the sun sign, we need a characteristic that can be determined unambiguously for each member of a large population. A person's occupation is ideal for such a study, because it can be determined unambiguously by using standard reference books. For example, Americans who have done sufficient work in science to be listed in *American Men of Science* (1965) are scientists, and others are not. Although various astrologers may disagree on the specific effects of a given sign and may even define the signs differently (some of them have now become aware of the precession of the equinoxes), virtually all of them claim some connection between one's sun sign and one's chances of success in (or aptitude for) a given occupation.[1]

In searching for such a correlation I have tabulated the birthdates of 16,634 persons listed in *American Men of Science* and of 6,475 persons

1. For a summary of such claims see M. Zeilik II, *American Journal of Physics* 42 (1974): 538-42, or L. E. Jerome, *Leonardo* 6 (1973): 121-30.

Table 1.
Number of births by astrological sign

Sign	Dates (inclusive)	Scientists*	Politicians*
Capricorn	Dec. 24 - Jan. 19	1241	462
Aquarius	Jan. 23 - Feb. 18	1217	445
Pisces	Feb. 21 - Mar. 19**	1173	460
Aries	Mar. 23 - Apr. 18	1160	432
Taurus	Apr. 23 - May 19	1185	471
Gemini	May 24 - Jun. 19	1153	471
Cancer	Jun. 24 - Jul. 20	1245	486
Leo	Jul. 25 - Aug. 20	1263	504
Virgo	Aug. 25 - Sept. 20	1292	497
Libra	Sept. 25 - Oct. 21	1267	523
Scorpio	Oct. 25 - Nov. 20	1246	488
Sagittarius	Nov. 24 - Dec. 20	1202	453

*Birthdays taken from consecutive pages in two different volumes listed in *American Men of Science* (1965). A small percentage of scientists (less than 1 percent, in my estimation) may choose not to be listed in this directory, but elimination of this small number from the sample can hardly have a significant effect on the overall distribution. Some of those listed may also pursue other occupations, but this does not nullify the fact that they have achieved something in science to set them apart from nonscientists.

*Virtually all of the birthdays in *Who's Who in American Politics* (1973) were used. About 1 percent of the IBM cards were punched incorrectly and not redone.

**February 29 not included.

Table 2.
Number of births on each date

Scientists	Politicians
46 40 52 50 50 51 49 31 50 39	26 14 17 18 23 19 16 08 11 15
48 48 40 28 47 45 63 45 43 36	15 20 23 18 12 16 20 14 22 24
40 55 47 53 52 47 39 47 47 36 44	20 23 15 17 15 19 11 14 16 13 15
48 59 48 41 45 43 39 34 49 35	17 16 17 12 25 20 19 14 25 14
48 46 42 49 42 48 54 35 48 52	17 19 19 19 13 09 21 14 21 23
33 47 50 43 58 41 36 55 10	11 17 18 20 21 15 18 20 07
50 47 37 26 42 38 45 45 41 38	21 13 14 15 19 20 16 21 17 19
45 44 54 48 40 44 61 46 39 42	24 14 20 20 16 19 21 12 19 20
51 52 36 45 48 43 41 43 40 42 45	19 18 16 13 11 22 19 24 12 19 12
43 38 36 46 37 45 43 41 34 49	21 13 13 13 18 16 15 18 17 20
43 36 46 54 40 51 43 50 48 58	16 24 20 14 14 18 20 14 18 16
44 51 47 56 40 43 45 40 44 31	17 18 14 16 18 15 20 11 18 16
48 43 34 44 46 47 51 50 38 36	15 17 13 16 15 16 17 20 16 20
37 57 48 48 38 42 45 35 52 53	14 21 21 22 22 22 15 18 23 13
52 48 50 46 47 44 40 54 40 50 41	17 15 10 13 19 10 11 19 10 12 16
46 32 45 33 47 47 43 44 46 45	18 18 17 23 10 12 20 20 18 18
48 37 36 34 38 40 54 36 40 49	13 31 17 16 21 26 22 17 24 13
39 52 51 44 46 45 42 46 34 52	21 19 14 15 13 17 19 20 31 19
53 49 53 52 39 43 56 37 42 39	19 12 21 24 14 21 18 19 22 26
49 45 50 44 58 53 31 57 51 35	19 17 16 21 12 24 20 21 16 18
50 42 54 38 46 42 37 52 31 45 33	10 30 20 25 23 23 25 13 19 12 17
56 52 46 45 54 50 47 44 60 47	13 16 21 33 20 16 21 18 21 22
52 52 33 46 56 43 51 46 41 56	09 17 21 18 19 18 18 12 22 17
50 58 45 55 49 53 43 42 47 43 51	24 21 13 24 16 22 24 18 17 17 28
59 56 57 39 35 56 56 57 40 40	28 24 23 18 22 17 22 14 19 17
47 39 56 55 40 44 60 40 43 45	11 23 20 18 13 21 12 12 11 20
50 49 49 47 45 57 46 38 38 34	24 27 17 21 17 16 28 16 17 18
42 57 52 55 46 57 43 57 49 52	25 22 13 17 19 14 24 15 23 28
47 51 44 46 48 52 38 54 41 45	15 21 16 09 26 17 17 19 25 18
33 61 46 37 50 43 44 69 44 48 53	18 11 15 18 16 14 19 24 23 13 12
43 42 45 34 38 40 43 47 48 42	20 21 15 15 19 18 25 13 17 20
45 43 45 49 53 58 42 39 44 55	22 17 21 21 19 16 17 15 20 16
45 49 51 51 45 53 48 33 51 48	18 17 24 17 14 23 15 17 18 20
52 30 43 33 52 48 33 40 39 48	14 17 19 17 19 13 13 08 16 20
42 47 36 45 40 43 40 57 54 51	22 20 15 12 17 20 11 21 19 16
44 42 47 53 51 39 45 46 44 51 47	22 14 22 13 06 20 20 14 20 24 18

listed in *Who's Who in American Politics* (1973). The results are summarized in Table 1. Because the starting and ending dates of a given sign vary from year to year, I have tabulated the totals for the central 27 dates of each sign. The dates not included in these signs show no significant deviation from the flat pattern observed in the dates that were used, as can be seen by referring to the complete tabulation in Table 2.

The number of scientists born under each sign lies between 1,153 and 1,292; the mean (m) is 1,220 and the standard deviation is 456. The theoretical standard deviation for a binomial distribution of this size with randomly selected signs would be 33.4. The maximum deviation observed is 2.1 times the theoretical binomial standard deviation. Corresponding numbers for the politicians are: $m = 474$, $\sigma = 26.2$, and binomial $\sigma = 20.8$. The value of the reduced chi-squared for a fit to a flat distribution is 1.70 for scientists and 1.45 for politicians. These values are slightly high, and careful study of the numbers in Table 1 shows that there is a definite trend in the dates. *Both* sets shows an excess of births in late summer and a corresponding deficiency in the spring. These deviations are somewhat too large to be random fluctuations, even though they are a small percentage (less than 5 percent) of the mean. But there is no need to invoke astrological influences for this effect; the same pattern appears in "live births by month" in the U.S. population, where an excess of about 5 percent in July, August, and September occurs (*Vital Statistics of the United States 1968-69*). Thus any effect of one's sun sign on one's choice of occupation must be considerably less than 5 percent, hardly enough to justify the vast literature on the subject.

No effect was observed in the individual dates, either; for scientists, the mean number per day was 45.6, the maximum observed was 69, and the minimum 26. One hundred twelve dates, or 30.7 percent of the total of 365 dates, had more than 52 or fewer than 39 scientists' birthdays; that is, there were 253 cases within one standard deviation of the mean—just about what one would expect for a random normal distribution. In other words, a table of birthdates serves reasonably well as a random number generator (unless a pair of twins is listed).

An astrologer might argue that the class of scientists and the class of political figures is too broad and that subsets of these groups (e.g., microbiologists, paleontologists) might favor certain signs, but that these sets would distribute themselves among the various signs so that no overall effect is seen. However, books on astrology consistently insist that "scientists" or "politicians" are favored by one sign or another. Furthermore, it

is highly improbable that the various scientific disciplines could be favored by certain signs in such a way that when the groups are added together no effect of the sun sign remains. By breaking the population up into sufficiently small subsets one can undoubtedly find, in one subset or another, a surprisingly large deviation from the mean in some range of birthdates. But the significance of such a deviation must be viewed in the light of the large number of possible subsets that could be chosen, as well as the large number of ranges of dates that could be used. If an astrologer chooses the occupation and the range of dates *before* looking at the data and correctly *predicts* a large deviation on the basis of his "science," then the result might be significant. However, that has not yet happened.

In the face of this negative result some astrologers might be tempted to claim that they never attached *any* significance to sun signs. But they are then faced with the task of explaining (1) why their "science," thousands of years old, suddenly has lost one of the elements that has appeared in every book on the subject, (2) how the positions of the planets can have an influence if the sun's position does not, and (3) how the time of day when one is born can have an influence which varies with the seasons and planets if the date of the year has no influence in itself. If logic had any place in astrology, they would be faced with a hopeless task.

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Cattle Mutilations: An Episode of Collective Delusion

James R. Stewart

During the late summer and early fall of 1974 the areas of northeastern Nebraska and eastern South Dakota experienced a rash of "cattle mutilations." In most instances dead cattle were discovered with parts of their anatomy missing. The parts of the body most frequently mutilated were the sex organs, ears, and the mouth. The episode reached its zenith during early October when discoveries of mutilated cattle were being reported on a daily basis to law-enforcement officials throughout the area. It subsided almost as quickly as it had begun, and although other areas of the country have subsequently reported the same phenomenon, there has been no media coverage of any further mutilations in this area.

The cause of the mutilations was, and in fact still is, controversial. Some persons believed that it was the work of members of a Satan-worshipping cult whose ceremonies called for the blood and parts of animals. Others believed that the mutilations were the work of extraterrestrial beings whose purpose was to examine the physiological makeup of cattle, or simply to terrorize human beings. Still others felt that the mutilations were the work of small predators who, after having discovered the carcasses of already dead animals, proceeded to eat the accessible parts. What follows is a detailed account of the outbreak, culmination, and precipitous decline of the cattle-mutilation episode.

The episode

The mutilation episode was apparently triggered by the more-or-less simultaneous reports of a cattle mutilation and the alleged sightings of UFOs and a "monster-thing" in the area. The initial discoveries of mutilations occurred in northeastern Nebraska during the latter part of August. The "thing" and UFO sightings were reported on the front pages of area newspapers during the first week in September. The close occurrence of

these events provided the perceptual framework for a new view of the cause of the cattle mutilations.

The authorities had been at a loss to explain the first mutilations and had offered little speculation about their cause. Area residents quickly assimilated the new information, and the bizarre explanations became increasingly popular. The authorities played an important role throughout the entire episode. In explaining the first mutilations they had been extremely cautious and conservative; but after the mysterious sightings they came to the conclusion that not only couldn't the bizarre explanations be discounted, but they might, in fact, be correct.

Newspaper accounts after the first week of September indicate that most local authorities had become convinced that the mutilations could not have been the work of normal human beings or the postmortem activity of small predators. Either blood-thirsty cultists or extraterrestial beings were considered by an increasing number of persons to be responsible for the mutilations. The director of male admissions at the South Dakota State Mental Hospital offered yet another explanation. He reasoned that the mutilations were the work of a deranged, psychotic personality. He also warned residents that such individuals often graduated to humans as their next victims. He even went so far as to offer a hypothetical description of the person (or persons)—a young male from a farm background with high levels of hostility toward his parents and other authority figures.

The inability of the social-control agencies to satisfactorily explain the early reports of cattle mutilation was probably one of the major factors contributing to the significant increase in both the number of reported mutilations and the area over which they occurred. Within a short time reports of mutilations had spread from northeastern Nebraska throughout eastern South Dakota. In fact, the episode can be more adequately analyzed by breaking it down into two rather distinct phases—the Nebraska phase, lasting roughly from August 15 until September 30, the South Dakota phase, lasting approximately from September 15 until October 31. This distinctness is best illustrated by contrasting the number of newspaper column inches in the major area newspapers devoted to each state's reported mutilations during these time periods.

It is apparent that as the Nebraska episode waned in interest the South Dakota episode gained momentum. However, at the time these

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1. The newspapers used in this study were the *Sioux City Journal*, the *Yankton Press and Dakotan*, the *Sioux Falls Argus-Leader*, and the *Aberdeen American-News*.

events were not analyzed as separate because of their geographical proximity and because the mass media in the area generally report the news of both states.

Column inches of news concerning cattle mutilation in four daily area newspapers

	Nebraska mutilations	South Dakota mutilations
August 11-20	0	0
August 21-31	34	0
September 1-10	51	0
September 11-20	78	10
September 21-30	5	52
October 1-10	0	123
October 11-20	0	82
October 21-31	0	13
November 1-10	0	0

The precipitating factors created a growing anxiety and gave legitimacy to the UFO or blood-cult explanations of the mutilations. During the peak of the episode, radio and television broadcasts and newspapers contained daily accounts of any newly discovered mutilations. In addition media coverage generally contained interviews with law-enforcement officials, veterinarians, or other knowledgeable persons. These interviews often confounded rather than elucidated the search for the cause of the mutilations and frequently contained unsupported personal opinions. The following headlines are typical of the confusion which prevailed during the episode:

"Stories of a 'Thing' Told by Others Here" (*Sioux City Journal*, 1 September 1974).

"Veterinarian Says Flying Objects, Cattle Mutilations May Be Related" (*Sioux City Journal*, 6 September 1974).

"Farmers Check Herds in Wake of Mutilations" (*Sioux City Journal*, 20 September 1974).

"Mutilators Psychotic, Says Yankton Mental Unit Officer" (*Sioux City Journal*, 3 October 1974).

"Doctor Says Cattle Mutilations May Switch to Human Victims" (*Sioux Falls Argus-Leader*, 3 October 1974).

"Cattle Mutilations Have Farmers Jittery; Officials Blame Predators" (*Sioux Falls Argus-Leader*, 8 October 1974).

"Mutilations Spook Area" (*Aberdeen American-News*, 17 October 1974).

Law-enforcement officials warned people to be on the lookout for strange incidents in their area. They also encouraged local residents to band together and form patrols to survey the farm lands during the night hours when most of the mutilations were thought to have occurred. Many groups followed this suggestion and some groups even went so far as to arm themselves. Despite the increased vigilance, the night patrols never observed anything suspicious or unusual. A few groups also offered rewards for information leading to the arrest and conviction of the person or persons responsible for the mutilations. However, no local residents were ever questioned or arrested.

There were 75 to 100 reports of mutilated cattle before the episode ended during the latter part of October. The decline in the number of reported mutilations seems to have begun in the same manner in both Nebraska and South Dakota. Meetings were held which were attended by law-enforcement officials, state veterinarians, and interested farmers. The general conclusion reached at these meetings was that in the vast majority of instances the cattle had simply died of natural causes and the teeth marks and tearing actions of small predators had caused what was termed the "mutilations." While not everyone agreed with the findings, it was obvious that after sifting the evidence, officials were convinced that the mutilations were, in fact, a natural phenomenon. The reports of the two state veterinary-diagnostic laboratories stated that every animal brought to them had died of natural causes and that predators, by tearing away the soft parts of the carcass, had been responsible for the apparent "mutilations." When the reports of these two meetings were broadcast by the area mass media the episode quickly subsided.

That the episode occurred at all shows that there was a partial breakdown of the normal social-control forces. The failures of the social-control agents stemmed from their being suddenly confronted with an unusual situation which was not adequately covered by the accepted norms of explanation. Local law-enforcement personnel have little, if any, experience in determining causes of cattle deaths. Consequently, they were inclined to adopt the farmer's explanations in the absence of any solid refuting evidence of their own. The same was true of some local

veterinarians. Rarely do they examine dead cattle; instead that are usually asked to treat living animals.

It should be pointed out, however, that many officials remained skeptical throughout the entire episode. These persons preferred to wait until the evidence was examined by knowledgeable experts before coming to any conclusions regarding the cause of the mutilations. Their cautious statements reflected the doubts they harbored, but their disclaimers of cult or UFO involvement were usually overshadowed by the more exciting accounts offered by persons with questionable credentials.

As the episode progressed there continued to be a lack of evidence to support the claims of the "believers," while at the same time the prestigious reports of the state laboratories supported the skeptics' version of the mutilations. The death knell of the episode was sounded when the South Dakota Crime Bureau issued a statement which said that, in their estimation, the deaths of the cattle were natural, and they could find no evidence that would support a more detailed investigation. Thereafter no more reports of mutilations appeared in the newspapers in the area.

Analysis

This episode appears to be a classic case of mild mass hysteria.[2] Accounts of similar hysteria have been previously reported in Seattle, Washington (Medalia and Larsen 1958), Mattoon, Illinois (Johnson 1945), and southern Louisiana (Schuler and Parenton 1943). Those instances and the cattle-mutilations hysteria share a common theme—for inexplicable reasons people suddenly perceive the mundane in a new, bizarre fashion. Everyday occurrences (i.e., nicks in windshields, not feeling "up to par," or dead cattle) are given a new, exciting, anxiety-producing definition. The extraordinary interpretation defies logical explanation. No refuting evidence can initially be mustered by authorities, and further accounts of the behavior are increasingly reported by the affected group of persons. Skeptics, however, persist in their naturalistic explanations and, inevitably, after a brief period of time their interpretations prevail. Lack of scientific proof or verified observations eventually result in the termination of the episode, and it usually dies away rather quietly and inconspicuously.

Usually there are a number of pre-existing structural elements in a

2. The analysis of this episode used the value-added theory of collective behavior of Neil Smelser.

society which make it possible for an episode of this nature to occur. The two conducive features in the cattle-mutilation episode appear to have been (1) the prevailing method of raising cattle and (2) the high potential for communication that existed in the area.

Most of the mutilated cattle were not discovered until two or three days after they had died. This situation greatly complicated the accuracy of autopsies subsequently performed by authorities. During the time of the year that the mutilations occurred most farmers and ranchers in the area allow their cattle to forage on recently harvested fields and pastures. The grazing cattle are generally some distance from the farmstead and are not observed on a daily basis, unlike a feeder-lot operation, where the deaths would immediately be discovered and would therefore probably have been attributed to natural causes. As it was, the dead cattle weren't discovered until decomposition had already started. The attribution of cause of death by veterinarians and animal scientists is made more difficult or, in some instances, impossible if decomposition of the carcass is in an advanced state. While this type of cattle raising certainly didn't cause the subsequent episode of mutilations, it did provide a setting which allowed the episode to develop.

The most salient conducive feature in this situation was the high potential for rapid blanket communication of the generalized anxiety of the actors. Virtually every household subscribes to at least one of the daily or weekly newspapers published in the area. (The four daily newspapers used in this study as barometers of the growth and spread of the episode are dominant, but local weekly newspapers are also an important source of news to residents.) Equally if not more important is the presence in each home of either a television or radio set, and most residents have both. Thus there is great accessibility to the media, and reports of the "mutilations" were both immediate and extensive.

In addition to the mass media, informal groups, common gathering places, and a general "small-town" atmosphere greatly contribute to the dissemination of newsworthy topics. Friends and neighbors are prime sources of information in a *gemeinschaft* communication network and were frequently mentioned as important sources of knowledge by persons interviewed in conjunction with this study.

These two features established broad parameters for collective behavior, and only when combined with straining features did they become important factors in the determination of the episode.

The strain in the cattle-mutilations episode involved the ambiguities

surrounding two circumstances—the plight of the cattle market and lack of information about the real cause of the mutilations.

The summer and fall of 1974 brought increased anxiety to farmers who raised livestock as a major source of income. While the price of livestock at the various markets remained relatively high, the cost of feeding cattle to a marketable weight reached an all-time high. The farmers were caught in a vicious cost-price squeeze. The situation became so serious economically that many farmers resorted to the deliberate slaughtering of their calves because they could no longer afford to keep them until they were ready for market. The feelings of anxiety, tension, and uncertainty generated by this situation were extremely widespread among cattle raisers both before and after the outbreak of the cattle-mutilations episode. The condition of the livestock market certainly cannot be considered a direct cause of the mutilations, but it did contribute to the formation of a susceptible state of mind. The helplessness before market conditions (i.e., the high cost of grain and the relatively lower prices received for marketed cattle) created and nurtured a growing sense of frustration, anger, and despair.

The initial reports of mutilated cattle not only acted as the precipitating factor but also contributed to the growth of strain in the episode because of the absence of a precise, well-defined explanation of the cause of the mutilations. The naturalistic explanations could not be proven beyond a reasonable doubt. The "sudden" appearance of the mutilations lessened the credibility of the natural-death-coupled-with-predators account of the mutilations. Many questioned why, if the naturalistic explanation were correct, mutilations hadn't been reported before and why the deaths weren't generally recognized by the authorities as natural. There seemed to be no routine answer adequate to satisfy the lingering doubts that existed. Most of the social-control agents (i.e., local sheriffs and veterinarians) were puzzled by the findings and conceded that they were at a loss to explain all of the mutilations. In some instances the cause of death could be established; however, most of the remains were too badly decomposed to allow adequate examinations. In the absence of definite proof to the contrary, the social-control agents were placed in the position of being unwitting accomplices to those persons who formulated a new, extraordinary interpretation of the mutilations.

Other, somewhat less important, factors are associated with the personality variables of individuals and focus on explaining the differential susceptibility to hysteria. These personality variables contribute to

the likelihood of panicking or, as in this episode, adopting the bizarre rather than the mundane explanation of the cause of the mutilations. Religious fundamentalism, lower levels of education, and lower socio-economic class status have all been demonstrated to contribute to this susceptibility (Cantril 1947, pp. 113, 131, 157, 197). All of these factors are generally overrepresented in rural areas, where religious beliefs tend to be more traditional (Slocum 1962, pp. 451-55), education levels lower than in urban areas (U.S. Census of Population 1970, Table 88), and a greater proportion of the population is blue-collar or lower-middle class (U.S. Census of Population 1970, Part 29, Tables 51, 55; and Part 43, Tables 51, 55).

These factors combine to produce an orientation which is less scientific and more likely to perceive the world as mysterious and somewhat incomprehensible. The role of these characteristics is difficult to assess in this episode of collective delusion, but previous studies have demonstrated that persons with these characteristics are more willing participants in incidents of mild or severe hysteria.

There develops in episodes like that of the cattle mutilations a pattern of beliefs that gives a more precise definition to the generalized state of anxiety created by the social strain. Uncertainty is the major ingredient in the participant's state of mind. The ambiguity was created by the unusual appearance of mutilated cattle and the lack of any satisfactory explanation regarding the cause. The elimination of the ambiguity may be accomplished by the provision of believable and noncontradictory information from the related agencies of social control. However, in this episode the agents of social control actually fostered the ambiguity and uncertainty not only by not denying but, in many instances, by directing, aiding, and abetting the creation of the bizarre explanation. Most local law-enforcement officials who investigated the mutilations concurred with the judgment of farmers who believed that the mutilations represented the work of cult members or alien life-forms from UFOs. Even local veterinarians often confirmed the suspicions of the farmers and reported that the mutilations had not been the work of predators.

In contrast, the reports of university-based veterinarians in Nebraska and South Dakota indicated that every animal upon which they had performed autopsies had died of natural causes, and the subsequent "mutilations" were believed to have been the work of small predatory animals. This was the first denial of the claims of the "believers" and probably was the major factor responsible for the eventual decline of the episode. Nev-

ertheless, "believers" correctly pointed out that the state diagnostic laboratories had examined only a small number of the actual reported cases and that the vast majority of mutilations remained unexplained. For every cattle death that could be documented as having resulted from disease, there were many that, at least in the minds of some residents, still defied explanation.

The inability of social-control agencies to eliminate the uncertainties surrounding the episode resulted in a failure to decrease the anxiety levels of the "believers." A frequently used method of allaying the increased anxiety is to restructure the situation in believable terms. The form and shape of the restructured interpretation is very much a function of cultural legends, myths, and folklore. While the appearance of mutilated cattle appears to be without precedent, there have been similar inexplicable events in the past. The continuing traditions of sea monsters, ghosts, goblins, and other mysterious phenomena represent a vast reservoir of pre-existing cultural anxiety. When ordinary explanations prove to be insufficient, the extraordinary pool of mystical lore is frequently tapped for an explanation. Usually the adoption of the bizarre explanation (e.g., blood cultists or UFOs) does not significantly reduce anxiety, but at least the cause of the ambiguity has now been identified.

In addition to pre-existing cultural lore, a series of recent dramatic events may have also played an important part in the formation of the bizarre explanation. Certainly the recent resurgence of occultism, as represented by the great popularity of books and motion pictures such as *Rosemary's Baby* and *The Exorcist*, plus the infamy and notoriety of the Manson Family, contributed in some manner to the origination of the novel interpretation of the mutilations. Moreover, UFOs are frequently identified as being responsible for various unexplained occurrences. The periodicity with which that explanation is employed might possibly allow it to be considered a routine explanation and, therefore, reduce the anxiety level of residents because it is perceived as being little cause for alarm.

Another element in the formation of the extraordinary explanation was the sighting of "The Thing." This unknown "man-animal" was described by the few persons who allegedly observed it as a hairy creature that walked on all fours and quickly vanished when seen by humans. All sightings took place at night and no one actually got a good look at the "animal." Accordingly, most authorities quickly denied the existence of this unusual creature because of the lack of hard evidence. Zoology students from the University of Nebraska also attempted to discover its iden-

tity. However, when they examined the areas where the creature was reportedly seen they found no traces of it. The report of the sighting appeared on the front pages of the two largest area newspapers only two days before the number of reported mutilations increased greatly.

Conclusions

Given the pre-existence of certain conducive and straining features in the local area, the episode developed in the aforementioned fashion. However, the evidence presented by various authorities leads one to conclude that the episode was in fact the result of collective delusion. The most convincing explanation of the episode is as follows: For reasons associated with strain and anxiety people started to interpret an everyday occurrence (the deaths of cattle) in a new, bizarre manner. The process described is virtually identical to an episode of windshield pitting that occurred in Seattle, Washington, in the mid-1950s. In a study of that episode the investigators concluded that it was caused by the fact that people suddenly started looking *at* their windshields rather than *through* them. The delusion resulted from attaching new significance to something which was commonplace, i.e., pits in windshields. In a similar fashion, some people in the two-state area of Nebraska and South Dakota came to interpret the natural deaths of cattle as something strange and unusual. Cattle deaths in this area probably occur at about the same rate over the years, but the widespread reporting of these incidents gave the appearance that there was a sudden inexplicable increase in the deaths of cattle.

The mutilation of dead cattle is also something which is perfectly natural and was unquestionably done by small predators. These animals are seldom observed in the daylight hours, and their nocturnal habits prompted the assumption that they didn't exist in numbers large enough to perform the mutilations. The apparent surgical cuts on the dead animals can likewise be explained by the extremely sharp side teeth of the small predators. According to animal scientists, the shearing of the soft meaty parts of the carcass by a predator gives it the appearance of having been cut by a knife. The similar pattern in the missing parts (i.e., ears, lips, tongues, or genitals) in almost all of the reported mutilations can also be simply explained. The hides of the cattle are too tough to be easily penetrated by the small predators, who naturally gravitate to the most exposed and softest parts of the carcass.

Another factor which seemed to give credibility to the UFO

explanation was the virtual absence of any tracks or markings at the scenes of the mutilations. This, too, can be explained naturalistically. Small animals leave few, if any, tracks, and tracks that remained at the scene were quickly obliterated by the persons who examined it.

The absence of blood in some of the animals was a factor that gave credence to the blood-cult explanations. People assumed that the animal was drained of blood so that the blood could be used in some sanguineous ritual of a sect. However, veterinarians pointed out that after a few days the blood of dead animals coagulates and gives the impression that the body has been drained.

The general public, with little knowledge of, or experience with, cattle deaths, could easily fall prey to the bizarre interpretation, but why would farmers who undoubtedly had experience with dead cattle prior to the episode also be caught up in the collective delusion?

There are two possible answers to this question. First, perhaps, given the conditions of strain and anxiety, farmers with first-hand experience and knowledge were simply caught up in the delusionary spiral. Second, there exists the possibility that some farmers reported mutilations because their insurance policies would reimburse them for acts of vandalism, but not for deaths resulting from natural causes. I have no evidence that claims were paid for mutilations, but this possibility might motivate some to report mutilated, and not simply dead, cattle.

Other mundane explanations include the possibility that in one or two instances the cattle were actually killed by people or even a pack of wild dogs. Not infrequently cattle are slaughtered in the field by persons who are stealing beef because of the high prices. This explanation is even more likely when one considers that the over-the-counter meat prices reached unprecedented highs during the period of the mutilations. There have also been isolated reports at various times of packs of dogs running wild, and it's conceivable that they might possibly have been responsible for a small number of the deaths.

In conclusion, it should be pointed out that while reports of mutilations have ended in the area discussed herein, other parts of the country have experienced similar episodes. Texas, Colorado, Oklahoma, and Kansas are among states that have reported similar outbreaks. It seems likely that one episode acts as a triggering mechanism for future episodes in neighboring areas. If this is what happens, one might expect reports of cattle mutilations to continue for some time, perhaps until most cattle-raising areas have experienced a similar episode.

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Book Reviews

Let Our Children Go! By Ted Patrick with Tom Dulack. E. P. Dutton, New York, 1976. 285 pp. $8.95.

Reviewed by Roy Wallis

Where men in general have come to doubt, cognitive deviance—belief in some more-or-less-systematic range of ideas at variance with the common consensus—is not subject to the Draconian response which was once often its consequence. We no longer burn witches or exterminate all who will not accept that the communion bread and wine are mystically transformed into the body and blood of Christ. Ours is an age of toleration. But toleration has its limits even now and remains at best a variable property of social relationships. This can be seen clearly in the response exhibited toward new religious movements in Western societies. Some become the object of mere patronizing ridicule, while others are subjected to a hostility which seems out of all proportion to the threat they pose.

Conversion to such movements, therefore, also rouses varying emotions in those whose friends or relatives have undergone the transformation. While historically the organized clergy have undertaken the task of polemicizing against such departures from denominational orthodoxy, today the clergy too are beset by doubt. God moves in mysterious ways and when the cognitive status of one's own faith has been relativized by the commodity-market character of contemporary religion ("Attend the church of your choice this Sunday"), and the increasingly obvious lack of credibility which declining memberships in and attendance at churches of most denominations signify, it ill behooves the clergyman today to throw the first stone. After all, no matter how exotic or bizarre modern manifestations of religious interest are among the young, the interest is *religious*, and a general revival of religious concern may have overlap effects on one's own congregation.

Hence, when both church and state adopt an attitude of religious toleration, the laity must organize themselves to protect the young. The new religious movements in the West have therefore given rise to a wide range of typically rather ephemeral organizations and associations comprising parents and ex-members of such religious groups, anxious to publicize the threat posed by them. Usually their parental members have been mobilized because an offspring has been "lost" to the Children of God, Divine Light Mission, Krishna Consciousness, or one of the

less-well-known new religions. But while publicity may do something to prevent other parents losing their children, it does nothing to solve one's own problem, namely, how to get one's child out and restore him or her to "normalcy." This problem has led to the development of a new occupation designed to provide its solution: the "deprogrammer."

In the United States Ted Patrick has become a national figure as the first and paradigmatic "deprogrammer." The basic step is simple. Parents come to him, asking for aid in recovering one of their children from a religious group. Since the "children" in question are over 18 and legal adults, and members of these groups by their own choice, police and courts will not intervene. So the parents turn to Patrick, who employs less orthodox methods. First he locates the individual to be "rescued," and wherever possible observes their movements and routine and informs himself of their surroundings. At a convenient time when the young person will be near a roadway, or can be lured there by friends or relatives, one suitably sturdy person, often the father, will push him into the back seat of a two-door sedan while someone grabs him from inside. A third individual jumps in beside the rescued child, or kidnapped young adult (depending on which side you are on), and helps hold him down. Another guns the car's motor into action and off they speed. A back-up car may contain additional support in the event that the object of rescue is accompanied by fellow religionists who may have to be fought off. Patrick, in short, is a professional kidnapper, or rescuer, as he prefers to be known.

Of course the action does not stop with the kidnap. The legally adult "child" is then carried without his consent to a suitable location, a distant motel, a sympathizer's home, a relative's apartment. There the windows have been nailed down, the doors locked, the telephone disconnected. If he's carrying a Bible, it will be snatched away from him. If he's a member of Krishna Consciousness, his hair-piece will be cut off. If he seeks to escape, he will be threatened with physical violence. Then, in series, relatives and Ted Patrick and his aides batter the victim with questions, arguments, Bible quotations, emotional pressure, insults—whatever it takes to break their prisoner down and get him to agree that he has been deceived and exploited, that his leader was a confidence swindler, and that he has been brainwashed by the religious group. He may be kept in captivity for ten days or more, by which time he will either have broken and accepted his captor's claims, at least temporarily, or have escaped. Some have escaped and been recaptured. Others have seemed to acquiesce, but then, when freed, have returned to their religious group. But Patrick claims the process, which he terms "deprogramming," is usually successful. In *Let Our Children Go!* Patrick describes some of the rescue operations and the "deprogramming" process and quotes the grateful praise of some of those he has helped. For example, one says: "Without Ted, today I'd be a robot for Hare Krishna. Without Ted, I would have been ruined for life." And this is the most curious thing about the whole business. While some deprogramming subjects have escaped to heap invective on Patrick and their parents and to bring criminal action against them, a surprising number seem to have come out grateful to Patrick and singing his praises. Indeed a number of them have become abductors and deprogrammers themselves, sometimes assisting

Patrick in his operations, of which he claims to have arranged over 1,000.

But not all are grateful. Patrick has been arraigned and tried in a number of states for his efforts. In a case in New York the jury found in his favor and acquitted him, doubtless believing that life in the religious group in question was so damaging to the members that coercion by concerned relatives and their agents was justifiable in seeking to remove the legally adult child from its clutches. One juror referred to the group as "spiritual fascists" after the trial. But not all the decisions have gone Patrick's way. In Colorado he was convicted and paroled on probation, and in California he currently faces a year in jail, having failed in the appellate court to reverse a conviction for false imprisonment.

The issues surrounding the Patrick phenomenon are both scientifically and politically fascinating. Patrick's theories about the recruitment processes and motivations of the religious groups and about his own techniques are not, to my mind, convincing. He argues that all the new religions are primarily money-making enterprises run by blatant charlatans and confidence tricksters. This is, of course, an hypothesis that any investigator must reasonably entertain. Sun Myung Moon, the Guru Maharaj-ji, Maharishi Mahesh Yogi, and Ron Hubbard do not appear to live a life of austerity. But beyond this, Patrick's theories possess little evidential weight. He claims, for example, that their missionaries recruiting young people on the streets employ a technique of "on-the-spot-hypnosis" and that new recruits are subjected to "brainwashing" and subsequent "programming" such as to render them "zombies," entirely lacking in free will. Hence they are prepared to renounce their parents and former friends as being of the Devil, to hand over their goods and income to the group, to work for it night and day, to live in conditions that shock their largely middle-class parents, to abandon career or college in the pursuit of goals that seem meaningless to their parents, and to acknowledge the leaders of these groups as guru, prophet, or Messiah. Patrick and the parents support their case by referring to the completely changed behavior, values, and personalities of their children. The children become unrecognizable to their parents and unresponsive to them. Their lives are so radically and incomprehensibly transformed that the change could only have resulted from "brainwashing." They draw upon the case of Charles Manson and his Family to illustrate the evil that such groups can become. Their rhetoric and theories therefore legitimate abduction, coercion, and deprogramming. When the victim is kidnapped, Patrick argues, he has no will, let alone a free will, due to his brainwashing by the group. "Whereas in the cult indoctrination, everything possible is done to prevent the person from thinking, in deprogramming I do everything I know how to start him thinking." Deprogramming is thus, says Patrick, an attempt to restore the child's will, his freedom of choice—except, of course, the choice to go back to the religious group.

Why do I claim there is little evidence to support Patrick's views? The terms he employs are among the most vague and ill-understood ideas in the area of psychology or sociology. We may think we know what we mean by hypnosis and brainwashing, but in fact very little is known about what these concepts involve. There is no generally accepted explanation of hypnosis, and there is certainly no evidence that "on-the-spot hypnosis" of the kind Patrick suggests is possible. *Brainwashing*

is a thoroughly emotive term and seems to have no clear or scientifically accepted content. Rather, it is a term people tend to employ to explain behavior that has offended the group they come from and have returned to; it provides a way of justifying that behavior by denying that one was responsible for it. "I was brainwashed" is a claim of the form: "I can't give you any reasonable explanation for what I did; or even perhaps any longer give myself such an explanation, at least not one that could make my behavior justifiable in your or my eyes." Brainwashing absolves the individual, or his parents, of responsibility, of accountability for what occurred. It is rhetoric, a loose metaphor that *seems* to explain what has happened but in fact does nothing of the sort.

It is true, as Patrick and his parent-supporters claim, that the techniques of indoctrination employed by some of the religious groups, involving isolation, fatigue, repetition, peer-pressure, and removal of identity-supports, do closely parallel techniques employed by the Chinese in the Korean War. But this simply tells us that the returning American and British soldiers who collaborated *also* needed to be absolved for behaving as they did. It does not *explain* why they collaborated. And Patrick, of course, uses the same methods.

In the course of several years' research into marginal and new religious movements I have interviewed and spoken to hundreds of their members. I cannot generalize about all their members from my contacts, but it does seem clear to me that, although one or two seemed "spacey" and vacant, most seemed entirely normal except that they held some rather unorthodox views about the way the world worked, mankind's destiny, and the spiritual realm. Even the existence of "spacey" members proves nothing. Such behavior is not confined to the followers of new religious movements. Anyone who has spent time around a university or youth-culture will know that late adolescents and young adults in normal circumstances often adopt a withdrawn and uncommunicative manner, speaking in the vaguest way on transcendental matters, when they choose to speak at all. Most of the young religionists I have met are as happy, if not more so, than young adults of no faith. If they seem odd and even bizarre, it is because the imperatives and authorities they obey, the constraints they recognize, and the goals they pursue are not ours. It does not mean they have been "brainwashed," even if that term could be given some useful meaning.

But if that is so, why is Patrick often successful at deprogramming? My hypothesis is as follows. First, the religious groups in question are a tiny minority in Western societies, and their beliefs and practices are quite alien to the surrounding world. They are a cognitive minority. Such a situation is inevitably a precarious one. It needs to be buttressed by a way of life, a community of the like-minded, and a set of symbols and practices within which it all makes sense. Again, there is nothing peculiar about this. It is the situation for us all. Take away the things that make sense of our lives and we are also likely to become pretty malleable. The difference is, we are in the majority. Our everyday world extends indefinitely. We accept the dominant view about what is right, reasonable, sensible, and just because we were born into it, and everybody else seems to believe more or less like we do. Nothing, or almost nothing, challenges our basic beliefs. Our jobs, homes, local and national governments, the operation of bus and train schedules, hospitals and

prisons, all support these beliefs. Take away these supports and we might begin to think and behave very differently. But our supports can be removed only by a disaster, such as a war, famine, or an earthquake—by something of massive proportions. The follower of a minority religious group inhabits a small deviant world whose supports can be undermined fairly easily. Take away the supports and, if he has not internalized enough of the belief system or is not altogether committed to it because of doubts and dissatisfactions, he is likely to collaborate with us, to "see sense,"—our kind of sense. The military collaborators of the Korean War, when deprived of support structures, could see the sense of the arguments of their captors about the inequality, injustice, and exploitation of the Western capitalist world. But Patrick has two advantages the Chinese did not. The world view he seeks to draw his subjects into is the one they were born into and to which they still retain attachments, despite the rigorous efforts of the religious groups they have entered. Second, and perhaps more important, through the presence in the process of parents and other relatives, Patrick can call upon psychological and emotional resources unavailable to most others intent on changing attitudes rapidly.

But there are also broad political and legal issues that Patrick's efforts raise. There is an ambiguity in Western society generally about the point at which an individual becomes fully responsible for his own actions. The status of adolescent and even young adult is ambiguous in this respect: sexually mature, but not always seen as sexually responsible; physically mature enough to fight a nation's wars, but not intellectually or politically responsible enough to vote. These ambiguities often have been managed by reducing the age of legal adulthood. But legal definition and popular feeling may not always coincide, particularly in such sensitive areas as the rights and responsibilities of one's own offspring. Moreover, there is a strong popular feeling, reflected in Patrick's rhetoric, that the new religions transform the young so radically that these religions are as powerful and dangerous as some illegal drugs. If one can feel justified in preventing a young person's throwing away his life by taking heroin, why can one not prevent him from throwing away his life by leaving career and family to follow the Guru Maharj-ji? These are not simple matters readily resolvable, even by the legal fiat of an established age of adult responsibility, as the continuing debate about the appropriate age for sexual consent shows. However, Patrick's activities have not always been confined to these regions of ambiguity. He acknowledges, in his book, kidnapping and attempting to deprogram a man married for ten years with six children; and press reports indicate attempts on a 31-year-old woman and on two sisters of 21 and 23 years who had *not* joined a religious sect, but rather had refused to live at home in strict adherence to the Greek Orthodox faith of their parents. Although there may be ambiguities in some of the cases in which Patrick has been concerned, these seem to open the door to the abduction, coercion, and intense psychological pressurizing of anyone to whom we are related who does not believe or behave as we would wish. That is intolerable.

The Edge of Reality: A Progress Report on Unidentified Flying Objects. By J. Allen Hynek and Jacques Vallee. Henry Regnery Co., Chicago, 1975. 301 pp. $14.95 cloth, $5.95 paper.

The Invisible College: What a Group of Scientists Has Discovered About UFO Influences on the Human Race. By Jacques Vallee. E. P. Dutton, New York, 1975. 223 pp. $8.95.

Reviewed by Robert Sheaffer

It is not often that one encounters a book written by two trained scientists that promises to take one to the very "edge of reality." Such voyages of course are daily occurrences for those who dwell in the murky metaregions of the occult, but it represents a dark, uncharted path for those who have been trained in the exacting methods of the physical sciences. Thus one is not surprised to see that authors J. Allen Hynek, a Northwestern University astronomer and former Air Force UFO consultant, and Jacques Vallee, a computer scientist who also holds a degree in astrophysics, view themselves somewhat as pioneers. The book opens with a stern warning to those who find all new ideas "both frightening and a threat to their intellectual security" (this of course being the *only* possible reason anyone might disbelieve in UFOs). Their aim is to become Galileo, Einstein, and Daniel Boone rolled up into one, to "open up entirely new vistas" on an unseen universe. Indeed nothing less than a whole new universe awaits us, for it is the authors' modest intention to show how UFOs, ESP, and out-of-body travels are "signalling that there's a reality that the physical scientists . . . aren't at all conscious of, but exists!"

One might expect that physical scientists would approach such a wild, untamed region with infinite caution. If so, one will be disappointed, for the authors have gleefully swallowed a dismally high number of UFO hoaxes. Of the reported UFO abduction of two Mississippi fishermen in 1973, Hynek asserts, *"The men are not lying. I'm quite convinced of that"* [emphasis in original]. Then why did the principal witness back down, at the last possible moment, from his public promise to take a lie detector test while at a UFO conference in 1975? This promise was only reluctantly given after UFO skeptic Philip J. Klass revealed that an earlier polygraph test, which the witness had apparently passed, had in fact been a twenty-minute "quickie" job, conducted by an unlicensed, uncertified operator brought in from out of state. Never mind such details: the witness had "passed a lie detector test," and that's good enough evidence for Hynek.

The alleged UFO photos taken at McMinnville in 1950 are included in the book as apparently authentic, despite the fact that the witnesses have been shown to have falsified the time of day at which the photos were supposedly taken. The alleged "paranormal" powers of UFO contactee Uri Geller, the Israeli Cagliostro, are cited as compelling evidence for the reality of that fantasyland supposedly lying

beyond "the edge," despite the demonstrations of James Randi and others that Geller is just a clever fraud. And both authors are convinced of the authenticity of the supposed UFO landing which occurred in Kansas in 1971, even though the principal witness subsequently reported sighting, among other things, "the Wolf Girl." One is left with the feeling that were Hynek and Vallee to invest in real estate, their first purchase would likely be the Brooklyn Bridge.

The authors are anything but timid. (Even the format of the book is unconventional: most of it consists of transcripts of the authors' conversations.) They do not attempt to shy away from the obvious internal inconsistency of the UFO phenomenon, as "scientific" UFOlogists usually do. Instead they meet the absurdity head-on. Vallee concedes that the UFOs' reported behavior "is not consistent either with what you would expect from space visitors, or with what we know about physics. That's the dilemma." How to resolve it? Simple: first, we hypothesize that UFOs are coming from somewhere *outside* of space (?), and then we do away with physics.

With that dilemma nicely disposed of, Hynek enjoys telling tales about the "paranormal" feats of a Sioux Indian Medicine Man, which a friend of his has heard about while visiting an Indian village. Vallee prefers talking about elves and Elementals, and the Black and Red Meu, which can only be seen by his three-year-old daughter. Vallee confesses that he once thought the Meu, who live in haunted houses and play with ghosts, to be just childhood fantasies. But apparently the findings of his UFO research are now no less bizarre than his daughter's invisible companions. Anything goes when your working hypothesis becomes "interpenetrating universes." The authors can justifiably feel proud of their work, for they have succeeded in formulating the *ideal* scientific hypothesis: no matter what may be discovered in the future, their "parallel universe" scheme can *never* be refuted!

Vallee and Hynek likewise directly confront the tricky question of how UFOs always manage to slip away before the evidence of their existence becomes too convincing. "Close encounters" with UFOs seem to take place in isolated areas, and the supposed "physical remains" of their visits are always inconclusive. Photographs are never clear and convincing, and invariably only *one* photographer is present. *If* UFOs were in fact real objects, given the large number of reported sightings, it is inconceivable that conclusive evidence of their existence would not have been obtained by this time. Hynek has an answer for that objection: "The UFO is what has been termed a 'jealous phenomenon.' " (So termed by whom? By this reviewer. I introduced the idea to Hynek while I was a student at Northwestern.) "A Boeing 747 is not a jealous phenomenon, an eclipse isn't jealous, anyone can observe it. But a UFO is a 'jealous phenomenon' in that it seems to . . . be localized in space and time." And thus another troublesome problem has been disposed of, in the finest Medieval fashion: as soon as a name has been invented to cover some puzzling observation, the explanation has been completed. Hynek chooses to ignore the argument I presented in explaining the significance of this concept: when a phenomenon appears to be "jealous," like UFOs, ESP, and the Bigfoot monster, playing peek-a-boo with the world of objective reality, that is the strongest possible indication that it exists only in the overheated imaginations of its investigators.

The Edge of Reality is riddled with errors of fact, many of them small, but they nonetheless reveal the authors' uniquely careless scholarship. Everyone who reads the book seems to find a few more. For example, the authors state that "years go by without a single [airplane] crash." Philip J. Klass looked it up: there has been at least one fatal airline accident in the United States in every recent year, a total of 24 in the past five years. Aerospace writer James Oberg thought it curious that Mercury 9 should be launched before Mercury 8, which it must have been if the book's chronology of "astronaut UFOs" is correct. Tape recordings are said to be "in the Library of Congress" when in fact they're not. And the director of Dearborn Observatory in 1897—George Washington Hough, Hynek's own predecessor—was *not* its first director, as is stated. Is this the kind of scholarship that is expected to convince us to revise our concepts of the very nature of the universe?

Of UFOlogical skeptics Hynek says, "Heaven knows we need them to keep a proper balance." By this standard the Center for UFO Studies, of which Hynek is the founder and director, is an organization badly out of balance, for not a single UFO skeptic is to be found among its principal investigators or on its scientific board. Peas in a pod jostle each other more than does this like-minded crew. The authors' disdain for critical opinion is openly stated elsewhere in the book:

> Vallee: Do we have to give a day in court to the man who believes it's all nonsense?
> Hynek: Hell! One could spend all his energy confronting skeptics. . . . Why waste time on people who have not bothered to learn the basic facts? It's their problem!

To categorize *all* UFO skeptics, including such experienced investigators as the late Donald Menzel and Philip Klass, as "people who have not bothered to learn the basic facts" is nothing short of an outrageous falsehood. Hynek should publicly apologize for having so recklessly published such foolish charges. Here we see the unstated principle upon which the "scientific" UFO Center operates: *Responsible criticism does not exist.* Questions and disagreements are invariably ignored. Letters from responsible (but unwelcome) individuals remain unanswered. Results of UFO evaluations are never publicly released. (Why give out such information to just anybody?) Thus the operation of the center has come to closely resemble the astrophysicists' conception of a Black Hole; no matter how much material might fall in, nothing ever escapes. Yet the authors brazenly accuse all the other UFO groups of "actually *hiding* information instead of revealing it"! "They're publishing just enough to titillate the interest of their subscribers," charges Hynek, whose group publishes virtually nothing at all, while imploring its subscribers to become patrons at a thousand bucks a throw. "They turn into a PR organization," says Vallee of every UFO group except his own.

No meeting or conference organized by the Center for UFO Studies has ever included a single skeptic's dissenting voice. (Is the pro-UFO position utterly indefensible?) The house of cards Vallee and Hynek have built upon a foundation of hearsay evidence, careless scholarship, and neglect of scientific methodology would quickly tumble down in the turbulent air of open scientific debate. Having taken such pains to isolate themselves from all responsible criticism, it is not difficult to see why the authors now totter so precariously on the "edge of reality."

* * *

The Invisible College is best read sitting down, with seat belts firmly in place. If Jacques Vallee, in collaboration with J. Allen Hynek, can produce *The Edge of Reality*, then this book of undiluted Vallee can only be titled "Beyond the Brink."

Be prepared to meet Ummo, the inhabitants of the solar system of Wolf 424 (a red-dwarf star, believed to be incapable of supporting habitable planets), who cruise around in their Oawolea Ouewa (lenticular spacecrafts). You will also meet 7171, a UFO entity who is in frequent telepathic communication with a terrestrial medium, and Oeeu, the "Universal Association of Planets," a sort of cosmic United Nations. Vallee takes these stories seriously. Most UFO investigators take Vallee seriously. That fact alone suffices to keep the present writer from taking UFOs seriously.

Monsieur Vallee, computer scientist, astrophysicist, and member of the scientific board of Hynek's Center for UFO Studies, has a unique way of looking at the universe. It's called "metalogic." For those of us not familiar with that term, he explains that it means quite the same thing as "absurd." So should we protest that Vallee's theories are "absurd," he will correct our usage: they are merely "metalogical." That's the next level *above* common sense, just beyond the "edge of reality." UFO skeptics are wrong, Vallee would say, their theories objectively false. The UFO evidence allegedly proves that, in a manner that even Aristotle would find quite satisfactory, *Quod erat demonstrandum*. But Vallee's exquisite theories are not to be evaluated on such a vulgar level. They are metalogical—not precisely true, but certainly not false either, not in the same sense that UFO skeptics are simply *wrong*. UFOs, Vallee informs us, are "*truer than true*" (emphasis in original). Should anyone reading this actually understand what it means, it is urgent that you contact Vallee at once. There will then be two of you.

The metalogic truly represents the greatest advance in scientific philosophy since the invention of the Dialectic, which enables devout Marxists to "prove" that the Proletariat can only be liberated by being locked up in Gulag camps. One cannot get by with ordinary logic if one wishes to believe all the incredible things that Vallee does, so he rejects logic itself instead of rejecting Ummo, Oeeu, and the like. If the UFO evidence doesn't make sense, so much the worse for sense. Watching Vallee, who calls himself a scientist, so cavalierly jettison the objective, nonmystical world-view of science, one cannot help but wonder how far he might go were he to become an avowed mystic.

Spectra is the name given to the mysterious space entity which is alleged to beam down to Uri Geller the "paranormal" powers that enable him to do the things that stage magicians can do without them. Vallee has met Mr. Geller, and was most impressed by the apparent authenticity of his "paranormal" abilities. (I wonder if Vallee has ever met James Randi?) Geller's supposed revelations from the UFO-beings of Spectra of course fascinate Vallee, but he is not blind to the absurdities and contradictions in their messages; he recognizes that they are "telling obvious falsehoods and uttering sheer jargon most of the time." Does this damage Geller's credibility in Vallee's eyes? Not at all: "I think highly of Geller's talents. We cannot brush aside [his] experiences . . . with simple rejections. What we can and should do is to sort out the implications of the extremely confusing set of

events [they claim] to have observed." It appears that Geller's tales are simply *too absurd for Vallee to reject.* Hence they must be true, in some metalogical sort of way.

A policeman in Nebraska was supposedly abducted by a UFO in 1967. The UFO occupants reportedly gave the patrolman "a lot of interesting but possibly misleading information. They wanted him to believe that they came from a nearby galaxy. They had bases in the United States. Their craft was operated by reverse electromagnetism." Even Vallee finds it difficult to believe these things! Does he reach the obvious and straightforward conclusion that the witness is either hoaxing or else has hallucinated the incident? Certainly not. Vallee designates this aspect of absurdity "The Third Coverup." It represents "the built-in silencing mechanism of the phenomenon itself. . . . The phenomenon negates itself. It issues statements and demonstrates principles where some of the information conveyed is true and some is false." UFOs, he says, deliberately make themselves absurd to keep us from taking them too seriously. That line of reasoning can, of course, be utilized to justify *absolutely any absurdity at all.* One would hope that Vallee might look past the obvious immediate advantages to see the long-range problems that would arise if other scientists were to follow his lead in constructing hypotheses that can never be proven true or false.

The only thing wrong with Vallee's metareasoning is that, if adopted as a legitimate scientific paradigm, it would mean the end of experimental science. *No one could ever prove or disprove anything.* Science is a fully *consistent* body of knowledge; if metalogic is a valid methodology for analyzing UFOs, it must likewise be applicable to astronomy. Well, I say the earth is flat, and it rests on the back of a turtle. Don't say that's absurd—it is metalogical. Don't trot out evidence to show that I'm wrong, for contradiction is one of the ways in which the Great Turtle manifests the phenomenon. My flat-earth hypothesis is *truer that true.* Don't say that my theory is unscientific because it is impossible *even in principle* to prove it wrong, because Vallee's wild UFO speculations are likewise safe from the potential challenge of any critical experiment. In short, in *The Invisible College* we find nothing less than a complete and explicit rejection of the scientific method. Its rigorous standards of evidence are incompatible with the charming stories of miracles, little people, and mystical visions that Vallee wishes to weave into his UFO tapestry.

Vallee does indeed reach a conclusion about UFOs which presumably follows directly from his metaevidence. It is not immediately clear that conclusions of any kind can be drawn if one rejects "our laws of causality" (in Vallee's colorful phrase), but apparently even the Great Trailblazer was unable to make a clean enough break with his past to outgrow the childish habit of seeking conclusions from the evidence in hand. His conclusion is that UFOs form a "control system" for human consciousness: "they are the means through which man's concepts are being rearranged." How and why we are being "rearranged," and by whom, he is unable to say; whether by Affa, Ummo, Ankar, Oeeu, or Spectra is left for the reader to decide.

What, by the way, is *The Invisible College?* It is a loose federation of scientists who are carrying out their own investigations into the UFO phenomenon, even

though UFO research is not ("as yet," as they say) a recognized scientific field. (Very little of the book deals with the College: miracles and metalogic predominate.) The present-day Invisible College takes its name from a seventeenth-century group of scientists that met informally, even clandestinely, at a time when the established colleges were dominated by the fossilized doctrines of antiquity. As experimental science gradually became respectable, its practitioners crawled out of hiding. Vallee-style UFOlogists like to think that they, too, are far ahead of their time, and that someday their ideas will likewise be vindicated by history.

But the original Invisible College was made up of scientists who were rebelling against the very sort of mysticism that Vallee is seeking to bring back. They were followers of Francis Bacon, the arch-experimenter, who advocated that scientists "put nature on the rack and compel her to bear witness." Bacon would have been acutely uncomfortable in the presence of a metalogic.

Bacon also left his followers a sober warning, which the latter-day invisible college might do well to heed: "In general let every student of nature take this as a rule—that whatever the mind seizes and dwells upon with peculiar satisfaction, is to be held in suspicion."

Methinks that the members of today's Invisible College might show just a trifle more *suspicion* in analyzing reports of bizarre UFO encounters.

J. Allen Hynek comments:

There are several kinds of book reviewers: those who review a book in terms of their own expertise in the subject, thus giving the reader a rewarding and intelligently critical perspective; those who lack this expertise and resort to picking out irrelevant discrepancies ("On page 178 Jones states that Jefferies visited Patagonia in 1923; it was 1924!") just to prove that they read the book (at least page 178); and those who use the review as a vehicle for airing their own opinions and strong emotional bias, with little reference to the main thrust of the author's work. Sheaffer is a good example of all but the first of these.

Sheaffer's concern seems to be that the book is not a definitive work on UFOs. He fails to recognize the primary nature of the book: a conversation between two people who have devoted far, far more time than the reviewer to the subject, and who are themselves by no means in agreement on many aspects of the problem. *The Edge of Reality* was meant to be controversial, and even deliberately "visionary"; to exhibit the many sides of the problem of dealing with the phenomenon of UFO *reports*, whose existence no one can deny; and indeed, to parade to public view the authors' own puzzlement about UFOs. It was not intended as "UFO truth once and for all revealed."

Sheaffer has always totally ignored the continuing flow of truly puzzling UFO reports, from all parts of the world and in many instances from remarkably competent witnesses. He will undoubtedly be surprised by the results of Dr. Sturrock's recent survey of the membership of the American Astronomical Society on the subject of UFOs (Peter Sturrock, Stanford University Institute for Plasma Research Report No. 681), which points out that 53 percent of the respondents to the questionnaire (52 percent of the questionnaires were returned) indicated a

positive attitude toward the scientific study of UFO reports, and which also contains a few interesting UFO reports made by professional astronomers!

The reader will discover that Sheaffer has learned well at the feet of his master, Philip Klass, the not-too-gentle art of using *argumenti ad homini:* "Their aim is to become Galileo, Einstein, and Daniel Boone all rolled into one" is a most uncalled-for remark. Further, his charge that we "have gleefully swallowed a dismally high number of UFO hoaxes" is certainly not demonstrable. Hoaxes by whose standards? Is Sheaffer unaware of Dr. Bruce Maccabee's work on the McMinnville photographs (see the *Proceedings of the 1976 CUFOS Conference,* Center for UFO Studies), which showed from careful photometric study that the strange object had to be at a considerable distance from the camera? Also, what about the utter lack of substantiation of Klass's claim that Socorro was a hoax contrived by the Chamber of Commerce to attract tourists? A recent visit to Socorro failed to reveal any improved roads (our rented car could not navigate the road to the site, and when a four-wheel pickup was used, the primary witness, Zamora, spent 15 minutes trying to locate the site). There were no signs or markers in the town, nor have there ever been any, to indicate that here is where the UFO landed. No concession stands capitalize on the "tourists." If this is the sort of proof of hoax that Sheaffer accepts. . . ! With respect to the Pascagoula incident, I feel that Hickson was justified in refusing to take a polygraph test in the midst of a public conference, with all the "circus atmosphere" such a forum implies. In light of such errors of fact, I must have more than this reviewer's opinion that some of the cases Vallee and I have considered seriously are hoaxes and that we have "gleefully swallowed them."

In stating that UFO skeptics are people who have not bothered to learn the basic facts, I was speaking of skeptics in general, with whom I have had ample contact in my many years of work in the area. I have found very few skeptics who are informed on the subject of UFOs. There will always be a handful who have diligently studied any subject but choose to interpret the facts to fit their emotional biases. Think of those who still feel that the Apollo mission was staged on a movie lot in Arizona! Or the people who know that one can circumnavigate the globe, yet force-fit this fact into their flat-earth theories!

It is psychologically expensive, and wasteful of time and energy, to join in battle with such skeptics. Should NASA have delayed mounting the effort to go to the moon until they had convinced the Astronomer Royal (who stated in 1955, "Space travel—utter bilge!") that it was feasible? They had more important things to do. The success of the missions automatically disposed of the Astronomer Royal and his myopic ilk without one word of needless argument from NASA!

Sheaffer would have the Center for UFO Studies use its limited staff to tilt with the skeptics. We have chosen instead to publish, in our short history, many hundreds of pages of case reports and technical papers (e.g., *The Lumberton Report; Physical Traces Associated with UFO Sightings; A Catalogue of 200 Type-1 UFO Events in Spain and Portugal,* and *1973—Year of the Humanoids*). The Center contributes to a new publication, *The International UFO Reporter,* which involves the careful investigation of every report included in each issue, and the Center also maintains a computerized file (UFOCAT) that now contains over

80,000 entries. Thus we dispose of Sheaffer's "black hole" theory; he chooses to remain "gleefully" unaware of the products of the Center.

All in all, Sheaffer's unfounded criticism, while revealing his emotional bias and its effect on his judgment, is hardly germane to the contents of the book or appropriate to a scholarly review.

Jacques Vallee comments:

I have but few comments, since the reviewer has misunderstood both the spirit and the letter of the book to the point of assuming that I believed there were such planets as *Ummo* and *Spectra,* when a great deal of my time is spent precisely in exposing the contradictions of contactee stories. The only inaccuracy I would like to correct for the record has to do with the Center for UFO Studies, with which Sheaffer believes I am still associated. In fact I resigned from the scientific board of CUFOS over a year ago and am not currently associated with any UFO groups.

To relieve the dullness of this whole subject I would like to share with you and your readers the epitaph I have composed following the death of Professor Donald Menzel, to whom we owe many definitive explanation of the UFO phenomenon. I have written it as a limerick:

> There once was a dead man with a final answer
> To strange things in Heaven, but as he got closer,
> He did meet an angel,
> Who said, "Dr. Menzel,
> Why are you flying so, Sir?"

Robert Sheaffer replies:

Dr. Hynek has been kind enough to give us a reply that nicely illustrates all of my principal criticisms of his book.

Am I "unaware" of Dr. Maccabee's recent work? Even Dr. Maccabee does not make the claim that his research proves that the object "had to be at considerable distance from the camera," as Hynek would surely have known had he actually *read* the paper he cited.

"He fails to recognize the primary nature of the book . . . [it] was meant to be controversial." Is there not some better way to be controversial than to rush into print with reckless errors of fact, such as in the table of "Astronaut Sightings" (Chapter 3) or the badly misrepresented Walesville "UFO" incident (Chapter 5)? This sloppiness is not a necessary consequence of informality. Am I just nitpicking? Or should this gross carelessness serve to alert us that much, if not all, of the authors' UFO theorizing may be built on a house of cards?

My "black hole" criticism is entirely valid as stated: for the first few years of its operation, virtually no evaluations of UFO sightings were published by CUFOS. I will not credit a 1977 refutation of a charge that was entirely valid for the interval stated.

With regard to the Pascagoula incident, Hynek apparently conceded defeat

concerning the first polygraph fiasco, but defends Hickson's refusal to face the machine a second time. He fails to mention, however, that Hickson had agreed to the polygraph test *as a condition for being invited to the conference*, but then backed out *after* his arrival. Is this action "justified"? Concerning Socorro, I find myself being lambasted for the alleged shortcomings of *someone else's* analysis of the case, *a case not mentioned by me anywhere in my review* either directly or indirectly. (I agree that Klass's evidence for a Socorro hoax is not overpowering. But is his explanation as farfetched as the alternative?)

In light of the above, which of the two of us is guilty of the "errors of fact" that Hynek alleges?

Especially revealing is Dr. Hynek's automatic reduction of all skeptics to the level of flat-earthers and the faked-Apollo-flight nuts. (Who accuses whom of *argumenti ad homini?*) Disagree with me, says he, and you shall be dropped into the dustbin of History. If the voices of Galileo, Einstein, and Daniel Boone *were* to all be rolled up into one, would they not speak thusly? (One detects an accent of Zarathustra's voice as well.) Is Hynek "unaware" that both NICAP and APRO have told their members that Klass's investigations represent a significant contribution to UFOlogy and that his book *UFOs Explained* should be studied by everyone interested in UFOs, *even though these groups strongly disagree with Klass's ultimate conclusions?* The Center for UFO Studies makes no such concessions to the ravings of flat-earthers, UFO skeptics, and other crackpots. They have no time to "tilt" with unbelievers, as if with so many windmills. (Who is it that suffers from an "emotional bias"?) Dr. Hynek has convincingly illustrated my point that the "scientific" UFO Center operates on the principle that "responsible criticism does not exist."

Lest the reader conclude that the matter reduces to irreconcilable mutual charges of "emotional bias," consider this point: in a recent article (*Official UFO*, October 1976), I have plainly stated the type of evidence that would, if obtained, cause me to reconsider my position as a UFO skeptic. (They needn't land at the White House.) Let Hynek now point to the place where he has described the evidence that would cause him to change *his* opinions.

My chances of being laughed at along with the flat-earthers in the judgment of history are considerably smaller than the risk Dr. Hynek now runs of being accorded a place alongside the supremely credulous Sir Arthur Conan Doyle.

The Creation-Evolution Controversy: Toward a Rational Solution. By R. L. Wysong. Inquiry Press, Midland, Michigan (4925 Jefferson Ave., ZIP 48640), 1976. 455 pp. $15.00 cloth, $7.95 paper.

Reviewed by Norman R. King

Recent years have seen renewed attempts to popularize the theory of special creation as an alternative to evolution. Challenging evolution on the basis of religious appeals or condemnations has probably won few converts for the crea-

tionists side and almost certainly has alienated many from it. The public tends to be more impressed these days by arguments having a scientific flavor, and such arguments have wider appeal. Also, much of the current activity by creationists is directed toward convincing teachers, school administrators, and legislators that creation theory should be required study in public schools if evolution is studied also. No obviously sectarian doctrines, however, can be promoted in public-school science classes. Consequently creationists are increasingly adopting the trappings of science, including its language, methodology, and evidence, to support their position. The scientific arguments arrayed either in support of special creation or against evolution are often highly technical in nature and involve sophisticated philosophical concepts. A thorough and rational analysis, designed for the non-specialist, of scientific strengths and weaknesses of the two positions would therefore be welcome. *The Creation-Evolution Controversy*, by Randy L. Wysong, has been offered as such an analysis.

The publisher describes the book as "a noble attempt to treat a highly controversial subject in a fair and rational manner." The book jacket assures us that "we can relax in the comfort of knowing we will not be berated by scientific dogmatism or insulted by religious appeals." The author himself states, "Resolving this issue is intimately tied with honest, unprejudiced thinking, for which hopefully this book will be an aid" (p. vi). He is careful to concede, however, that his biases will surely "filter through here and there." Indeed, his biases come crashing through in several places, and the book is, in fact, clearly intended to persuade readers of the validity of the creationist position. His ostensibly impartial and objective stance is therefore particularly distasteful.

Wysong attempts to bring together data and arguments from all branches of science which have a direct bearing on the creation-evolution question. The book gives much attention to biochemistry, with nine of its 22 chapters dealing with topics such as the origin of proteins and DNA and experiments on the origin of life, liberally interspersed with time and probability considerations. Four chapters deal with genetics, three with geologic time and the fossil record, and one relates the First and Second Laws of Thermodynamics to questions about creation and evolution. The first four chapters are of an introductory nature, and treat, in order, the alleged importance of reaching the "right" decision, fallacious and valid techniques of argumentation, the nature of science and the methodology of scientific investigation, and definitions of the terms "creation" and "evolution." The final chapter, entitled "Rendering a Decision," consists primarily of summations of both the evolutionist and creationist positions, supposedly as a representative of each position would present it.

In chapters where specific scientific evidence is discussed, the emphasis is on either subtly refuting the evidence for evolution or discussing it with thinly veiled derision. In contrast, classical arguments for creation are offered without significant criticism. This lack of objectivity is perhaps best displayed in the summation chapter. The summary of both the evolutionist and creationist positions were, of course, written by Wysong. His defense of evolution is not unlike what one might expect in a defense of capitalism by Karl Marx! The evolutionist summation fills less than two pages, but the creationist summation takes ten full pages. This hap-

less evolutionist offers no convincing evidence at all to support his case, but simply pleads that it is not necessary to postulate the existence of a creator and that it is reasonable to believe in evolution even though the evidence for it is admittedly incomplete and it *can't explain life*. Following this glaringly ineffectual, gullible, and even pitiful presentation, the creationist then launches a lengthy and scathing attack. A few quotations will illustrate the tone of this tirade:

> Rather than evolution being a science, the exposé of, the objections to, the criticisms of evolution are science. (p. 410)
>
> True, one is free to still believe in evolution but it appears he must simply give up math, physics, chemistry, thermodynamics, etc., to keep the faith. (p. 411)
>
> Those that [sic] cannot see this [the evidence for creation] are diseased with the contagion of spiritual blindness that comes from social and educational immersion and baptism in naturalistic philosophy. (p. 411)
>
> Evolution can be thought of as sort of a magical religion. . . . And like all cultures practicing magic, evolution has its witch doctors. . . . The incantations and ravings can be heard by simply listening to the radio, watching the television, or reading a child's biology text. (p. 418)
>
> Although it claims to, the evolutionary religion offers no real hope or salvation for man. . . . Somehow the evolutionist expects us to take hope and derive comfort from the knowledge that if our star dies and we are all annihilated, the energy derived from the explosion of our bodies will help generate and mutate some other starfolk! Some religion, some hope! (p. 420)

The author's religious orientation comes out at several other places in the text. For example, he finds theistic evolution to be an unacceptable compromise, describing it as "only a filler, an easily passed bridge from theism to atheism" (p. 63). He does not see that the "bridge" could be crossed going in the other direction. He warns evolutionists that they will not be allowed to enter heaven if they fail to acknowledge a creator: "Evolutionists will continue to exclude the alternative explanation of origins, a creator, at the beginning then wonder why they do not find him at the end" (p. 402).

In commenting on scientific and religious techniques of persuasion, he states: "Religion has lost much of her power. Today the evolutionists have it. And surprisingly they are known to use the same inquisitorial tactics against heretics" (p. 28). The "tactics" he mentions by name include sadism, cruelty, and *torture*! By way of illustrating the importance of the creation-evolution controversy he contrives an imaginary discussion between an evolutionist and a creationist in which the "evolutionist" shows that if evolution is true, war is justified as a means of affecting social and cultural improvement (p. 3). Then Wysong argues that since evolutionists feel the need to attempt to communicate with presumed extraterrestrial life, creationists must attempt to communicate with presumed supernatural life (i.e., the creator). Wysong does not suggest specifically that the Bible would be the proper place to find messages from the creator, but the implication of his ref-

erences to "holy writings" (pp. 13-15) could be missed only by readers lacking the Judeo-Christian heritage.

Wysong's discussions of scientific concepts are grossly unfair. In discussing geological dating techniques (Chapter 10), for example, he devotes six pages to "explaining" the radiometric methods which establish the great age of the earth considered necessary for extensive evolutionary development. Clearly, however, the main objective of his "explanation" is to create doubts in the reader's mind about the validity of virtually all aspects of radiometric dating. He even devotes two pages to what he regards—because of his lack of expertise in the field—as errors in those methods. Then he has the temerity to assert that creationists don't care whether or not radiometric ages are correct, because, he says, the earth could only have been created with an "appearance of age" (just as Adam was created with an "appearance" of having grown to maturity). He does not explain why he feels that the physical world should have an apparent evolutionary history, but not the organic world. Nor does he explain why creationists feel the need to criticize radiometric dating, since even if the dates could be proved absolutely correct, they still would not regard them as disproving their belief in a young earth (i.e., *one whose age is* measured in thousands rather than billions of years). He nevertheless proceeds to devote 20 pages to describing 33 techniques claimed by creationists to yield young ages for the earth. In fact, however, modern textbooks on radiometric dating contain answers to all of his objections to the technique, and no geologist could possibly accept any of his young-earth techniques. But what is an unsuspecting layman, put off guard by Wysong's facade of impartiality, supposed to conclude from such a discussion?

Wysong's contempt for evolutionists and evolutionism is made apparent in several passages. For example, in all seriousness he states that "few evolutionary scientists . . . realize evolution means the initial formation of unknown organisms from unknown chemicals produced in an atmosphere or ocean of unknown composition under unknown conditions, which organisms have then climbed an unknown evolutionary ladder by an unknown process leaving unknown evidence" (p. 44).

What more could be said? But Wysong does have more to say. Creationists, he points out, need not postulate great lengths of time for the development of life, but evolutionists must speak in terms of "multiquadrupledoopleillions" of years (pp. 137, 233-34) for the origin of the first living cell, which evolutionists believe arose fully formed and spontaneously. He discusses at length the scientific difficulties in the belief in "spontaneous generation," but he tells us that many evolutionists believe difficulties in the theory will be solved in a "million billion quintiplatillion umptaplatillion, multiplatillion impossibidillion fantasticatillion" years of additional research (p. 347). "It is well known," he says, "that evolutionists worship at the shrine of time" (p. 137). He chastises scientists for believing in "biochemical predestination" (chemical evolution) as a means of explaining the abiotic origin of life (pp. 94-95). That prejudicial label is clearly designed to mock the scientific concept and perhaps, as a bonus to his case, illustrate the presumed religiosity of evolution. He regards the alleged attempt to invoke neo-Darwinian evolutionary mechanisms to explain chemical evolution as nothing

more than "name-dropping" (p. 127). To the claim that evolution is a proven fact, doubted by no informed persons, he responds, "The prevalence of this and like propaganda is to be expected though because propaganda, like manure, is of no value unless it is spread" (p. 24).

Although *The Creation-Evolution Controversy* is subtitled "Toward a Rational Solution," the book is unlikely to promote straight thinking on the part of the reader. For example, Wysong believes it logical to state: "Atoms have no morals, thus if they are our progenitors, man is amoral" (p. 6). He also believes that creation and evolution are *logically* opposite propositions; hence he asserts "disproving one substantiates the other" (p. 49). Thus, he says, "the evolutionist must advance natural mechanisms [for the origin of life]. The creationist must sit back and watch, challenging the evolutionary proofs that are pleaded" (p. 201). In other words, evolutionists must do all the scientific research; creationists need merely be critics. Wysong claims that since the classical notion of spontaneous generation has been disproven, scientists are wrong about life arising from nonlife and that a creator must therefore exist: "The law of biogenesis [proposed by Pasteur in 1860, the idea that life arises only from life of the same kind, as Wysong explained it] clearly precludes the chance origin and transmutation of life. The only alternative explanation is creation. Therefore, having established that there is a creator, we have answered the question concerning the origin of life" (p. 187). Since this "logic" proves that a creator exists, any scientific difficulties in postulating the existence of a transcendent being and any questions about his nature are beside the point. Then, in order to shield the creator hypothesis from scientific scrutiny, he asserts that natural laws cannot properly be used to evaluate the presumed supernatural activity: "By definition, a creator can transcend the laws imposed on his creation" (p. 188). Thus he maintains the ludicrous position that scientific analysis leads to a theory which cannot be evaluated by scientific analysis! Although apparently oblivious to the logical deficiencies in his position, he does seem to be aware of its scientific shortcomings. A theory that cannot be analyzed scientifically is obviously not a scientific theory. Therefore the layman must be convinced that evolution also is not a scientific theory. Wysong's approach to this task is to formulate the following argument, which is not only philosophically absurd but also concludes with a logical non sequitur (p. 45):

1. Scientific hypotheses are based on observed phenomena.
2. Evolution explains the origin of life.
3. Life has not been observed spontaneously arising.
4. Therefore, evolution is not a scientifically derived hypothesis.

Of course atoms have not been observed either, but that does not mean that the atomic theory of matter is not scientifically *derived.*

Wysong has a D.V.M. degree, so one might expect him to know a great deal about biology. Yet he claims that he does not understand why, if the earth is really very old, there are no trees dating from earlier than about 6,000 years ago, for he sees no reason trees shouldn't live for tens of thousands of years (p. 164). He thinks evolution theory requires that bodily organs originate by massive, simultaneous,

harmonious mutations, since "half-formed" organs would not be functional and would thus be eliminated by natural selection (p. 309). He does not understand how a primitive body style (e.g., lobe-finned fish) could survive after the descendant form (amphibians) appeared (pp. 287-288). Concerning the geological record of the evolutionary history of life he states: "The charts on historical geology are supposedly a representation of the historical record of life as it has been retained for our examination in the form of fossils. . . . Surprising as it may seem, the only real evidence for the geological succession of life, as represented by the timetable, is found in the mind of the geologists and on the paper upon which the chart is drawn" (p. 348). As a geologist I find that surprising indeed! Such misconceptions and misrepresentations occur in every chapter of the book and further multiplication of examples would be redundant. Suffice it to say that Wysong's treatment of scientific concepts is obfuscatory rather than educational.

Neither biologists nor geologists are portrayed in this book as having any sense at all. But one who implies that scientists accept clearly ridiculous concepts and practices looks ridiculous himself. Indeed that seems to be Wysong's objective. In view of his distortions and galloping bias, it is unfortunate that he proclaims his book will encourage and aid "honest, unprejudiced thinking." In fact, creationism and evolutionism are treated neither equally nor fairly. Obviously invalid creationist arguments are not questioned; valid and thoroughly justified scientific concepts and practices are challenged on fallacious grounds. The true nature of science and scientific inquiry can only be obscured by his discussion of methodology. He commits the same logical blunders that are exposed in many elementary logic texts. He offers no original arguments in terms of specific evidential content either against evolution or in favor of creation. In fact some of his arguments, such as those for design in nature and creation with an appearance of age, were dismissed more than a century ago by serious thinkers. The only positive influence that can come from such a book is that it may goad some students of science to research the validity of his charges, thereby increasing their knowledge of, and confidence in, the content and methodology of science.

It must be conceded, though, that some of the ways in which Wysong ridicules science and scientists are unique, and most are ingenious for their subtlety. This not quite transparent facade of objectivity is the most disagreeable feature of the book and serves to distinguish it from other books that promote creationism. *The Creation-Evolution Controversy* is unfortunately no improvement over other abysmal attempts to fabricate, for public consumption, a scientific case for creationism, even though improvement is sorely needed and would not have been difficult to achieve. Wysong will, nevertheless, probably be puzzled about how scientists can continue to be so afflicted with "spiritual blindness" that they will refuse to accept creationism after reading his book. It is entirely appropriate to conclude, however, that *The Creation-Evolution Controversy* is not a competent commentary on the scientific issues and should not be considered a contribution to rationality.

Castaneda's Journey: The Power and the Allegory. By Richard de Mille. Capra Press, Santa Barbara, Cal., 1976. 206 pp. $10.00 cloth, $4.95 paper.

Reviewed by Marcello Truzzi

The writings of Carlos Castaneda have had a profound effect on many, from college students interested in his transcendental message to some anthropologists impressed by his ethnographic skills. Castaneda has reaped great rewards from his books (*The Teachings of Don Juan: A Yaqui Way of Knowledge,* 1968; *A Separate Reality,* 1971; *Journey to Ixtlan: The Lessons of Don Juan,* 1972; and *Tales of Power,* 1974), both in royalties and in the form of a doctorate from the University of California at Los Angeles (which accepted his *Journey to Ixtlan* under its more staid title, *Sorcery: A Description of the World,* as his dissertation in anthropology). Unfortunately, what some viewed as a great academic success story has almost from the first been marred by speculations and suggestions that Castaneda's works represent a brilliant fraud, at least as scientific or anthropological documents. Much of this conjecture was contained in articles in Daniel Noel's anthology *Seeing Castaneda: Reactions to the "Don Juan" Writings of Carlos Castaneda* (G. P. Putnam's Sons, 1976), but the full story (at least until Castaneda writes his own revelations) has just emerged in a brilliant new investigative study, *Castaneda's Journey: The Power and the Allegory,* by psychologist Richard de Mille.

Through meticulous examination of the writings themselves, Dr. de Mille demonstrates many internal problems, discrepancies, and contradictions (especially in the timetables). This is augmented by thorough comparison of Castaneda's descriptions with known studies of Yaqui culture, interviews with many persons familiar with the author and his subject matter, and examination of the background of and influences on Castaneda. The book, through painstaking but highly successful research effort, manages to unwrap many of the enigmas surrounding the mysterious Castaneda and his alleged Yaqui mentor, the vaporous don Juan.

The problems that de Mille raises in this study leave little if any room for those who would still contend that Castaneda's work represents either autobiography or valid ethnography. Given the impact of Castaneda on anthropology (best exemplified by selections from his books now appearing in some anthropology textbooks and by David Silverman's recent study, *Reading Castaneda: A Prologue to the Social Sciences,* which argues that Castaneda's writings constitute a key to epistemological problems in social science), de Mille's exposé is particularly valuable for what it demonstrates about the state of contemporary anthropology, especially at UCLA. De Mille's chapter detailing how Castaneda apparently passed off his fiction as ethnography, and anthropologists' apparent lack of serious concern about the disclosure (many of us might have expected to see Castaneda's doctoral degree revoked), should be of great interest to those in the sociology of science. If

de Mille's analysis is correct—and I found it convincing—Castaneda's don Juan may be the biggest hoax in anthropology since the Piltdown Man.

Despite these bombshells, the author remains highly sympathetic to Castaneda's philosophic message. De Mille is apparently convinced by some claims of the parapsychologists and therefore does not write his critique from a positivistic perspective. Since Dr. de Mille has himself written science fiction, I suspect that he has special appreciation for the books as examples of imaginative writing. De Mille finds literary, aesthetic, and philosophic merit in Castaneda's writings (he even carefully traces the probable literary origins of many of Castaneda's ideas), and he portrays Castaneda as exemplifying the social role of the "trickster," which has long had interest for anthropologists. This regard for Castaneda's endeavor shows throughout de Mille's book and adds some interest to his analysis, while only amplifying the potency of his masterful debunking of Castaneda's works as scientific documents. Unlike de Mille, who seems somewhat amused by the whole episode, I earlier found myself aghast at the initial reactions of the social-scientific community to Castaneda's books and am outraged by the lack of serious reaction now that they are exposed as frauds.

All of this is not to deny any literary merits to the don Juan books. If Castaneda had sought a doctorate in literature or given his works to us as fantasy writings, I would not complain; but it is the belief that don Juan, his world view, and possibly even his described experiences are empirically real that has made the books so popular and influential. Now that the writings have been shown to be fiction, there are those (like Silverman) who would argue that the books are valuable to social science *nonetheless*. Since modern anthropology has finally rejected its early practice of armchair theorizing about allegedly *factual* ethnography (that sometimes was not), this new interest in taking *fictional* ethnography seriously is surely at least two steps backward and should be viewed as a mockery by those concerned with the development of a true science of culture. We might as well study Tibetan culture through the writings of T. Lobsang Rampa (Cyril Henry Hoskins), whose career is in many ways a kind of "lowbrow" version of the Castaneda Affair.

It is unlikely that Dr. de Mille's magnificent detective work will have much impact upon those smitten by the don Juan myth, but the book should be required reading for anyone interested in understanding the social realities behind both Castaneda's books and the academic follies that seem to have accompanied them. For those interested in Castaneda, the detailed bibliography is alone worth the price of the book.

UFOlogy. By James M. McCampbell. Celestial Arts Press, Millbrae, Cal. (231 Adrian Road, ZIP 94030), 1976. 202 pp. $4.95 paper.

Reviewed by James E. Oberg

UFOlogy has the form of words used to describe fields of science, such as biology, or psychology. This book is supposed to be a description of the new science of UFO studies and has the appearance of a scientific catalog of UFO effects. It is billed as "a scientific examination of the physical nature of the UFO phenomenon—a major breakthrough in the scientific understanding of unidentified flying objects." The prestigious Center for UFO Studies in Evanston has endorsed the book as "a basic primer for the beginner and a textbook for the informed." Even space-scientist Dr. Thornton Page, considered a skeptic by most UFOlogists, reports for the American Association for the Advancement of Sciences that "the book is recommended for general audience readers and may be suitable for auxiliary reading in high school and college science courses. It contains a good history of UFO reports." UFOlogers closer to the edge of reality, notably the pulp-monthly columnists, have been even more lavish in their praise. At last, the UFO community seems to be saying, UFOlogy has become a respectable science.

Not yet it hasn't. The introduction reveals the fly in the ointment, the sty (or is it a beam?) in the eye, the serpent in the garden of the self-styled "science" of UFOlogy. The author admits that all of the data he uses is untrustworthy! In other words, he is going to build a castle of UFOlogy on the shifting sands of rumor, gossip, myth, and fantasy. Skeptics have charged this all along, and McCampbell admits it!

These are the author's words: "The reader is requested to suspend his doubts and follow the argument that is developed in this book. . . . Nowhere does the author attempt to prove the validity of sighting information, or even evaluate it. The raw data are merely accepted without bias for the purpose of exploration. It is not necessary to believe the data in order to study it. . . . We will allow ourselves to say merely that such and such *happened*, where it is actually known only that it was *reported*" (pp. x, xi, xiii). Can this be the basis for a science?

The body of the book fulfills the promise of this attitude toward rules of evidence. The author seems to deliberately block any reader who wants to check out any of the cases to see if they actually did happen or not. McCampbell rarely gives the names of witnesses and usually identifies cases only by a footnote to a "case number" in somebody else's UFO book.

McCampbell believes in the "nuts and bolts" theory of UFOs (the so-called extraterrestrial hypothesis, which says they are the space vehicles of aliens visiting this planet), and he selects and organizes his data, allegedly, the "raw data," to support this hypothesis. Common reports of psychic manifestations associated with UFOs are simply ignored. Accounts of UFOs fading out slowly are not presented because, it seems, they would not fit the hypothesis. The most ironic

circumstance surrounding this approach is that McCampbell has selected his "raw data" primarily from a book by Jacques Vallee, the well-known UFO researcher who has vigorously rejected the "nuts and bolts" hypothesis as "naive," and whose book supports the psychic-manifestation hypothesis. What McCampbell has done, then, is to selectively excerpt data from one specialist's book, a book written to prove just the opposite point of view of his own, in order to support his own hypothesis. This is not science, it's chutzpah.

McCampbell presents George Adamski's religious fantasies as fact (p. 122). He reports the "UFO crashes" as fables, which even the noted radio storyteller Frank Edwards could not swallow (p. 143). He tells of the "heat wave" in an aircraft chasing a radar UFO near Walesville, New York, but does not mention (it would be appalling if he just plain did not know) that the UFO turned out to be a private plane without a filed flight plan and that the heat was caused by an aircraft engine fire, a fire which showed up on the cockpit warning lights and which prompted the pilot to bail out (p. 68).

The author asserts that a UFO caused the 1965 power blackout in the Northeast (p. 66), that "dogs dislike UFOs" (p. 86; I've always wondered about that), and that astronaut McDivitt saw "a glowing egg-shaped object" with a tail during his space flight (p. 38). (Here McCampbell's research consisted solely of believing everything Frank Edwards ever felt like writing on the subject, without checking any of it. It turned out that most of what Edwards reported was pure fantasy, but this wasn't demonstrated until real scientists investigated, which seems to explain why McCampbell and the other UFOlogists were taken in.)

Take the famous RB-47 radar case, which by space alone (more than three pages, 107-10) rates as one of McCampbell's "best cases." It would have been impossible for a real scientist to ignore all of the data both pro and con about this case, but the author does indeed ignore all explanatory research while adding to the mysteries by actually embellishing the event with dramatizations. In fact electronics engineer Philip J. Klass, of *Aviation Week*, published a solution to this case in 1974, a solution which the flight crew accepted as almost certainly authentic. UFOlogists who prefer enigmas to explanations have deliberately ignored the work of Klass, treating it as if it had been recorded on the blank portions of the White House tapes.

McCampbell does attempt to sound scientific, but a careful reader may detect more silliness than science in his writing: "It appears that beeping sounds near UFOs . . . are used to induce hypnotic trances. The mechanism for transmittal of the beeps seems to be encoded signals on a high-frequency carrier in the microwave range as suggested by the correlation between the Hills' experience and laboratory experiments with human subjects" (p. 54). This sounds good until the reader notices the odd fact that whenever scientific laboratory experiments are conjured up to support UFO evidence, the ubiquitous footnotes vanish like a fading UFO! One hopes that McCampbell is not secretly footnoting Frank Edwards again, but one cannot be sure.

But we do have *one* footnote of a scientific assertion: "A physical basis for the effect . . . is the increase of resistivity of tungsten in the presence of microwave energy" (p. 58). Following a paragraph full of "mights" and "coulds," this sentence

sounds authoritative, until the reader actually looks up the footnote citation: "This obscure point came to the author's attention a few years ago and, unfortunately, all efforts to locate the source have been unavailing" (p. 172). Perhaps Frank Edwards told him. The admission is refreshingly honest, especially in a book whose introduction warns the reader not to believe any of the facts to be presented inside but only to concentrate on the pretty pattern they make; but by now the reader is not willing to equate candor with reliability. The admission that he cannot prove his only scientific assertion (and that nobody he asked had ever heard of it!) does not stop McCampbell from using this "fact" to explain the reported UFO effects on radios and automobile ignition systems.

Missing as well is any footnote to laboratory experiments which might provide the slightest basis for blandly asserting that "an artificial state of fear that is induced by radiation is the suspected cause of this reaction . . . . The radiation that at greater intensity apparently causes a biochemical psychosis, also paralyzes dogs, cats, cows, probably birds, and possibly insects" (p. 89). Well, this is a measurable laboratory effect, and I, for one, would be fascinated to see some reference to it so I could read the original reports. But again there is no footnote to real science.

And so it goes. The evidence is admittedly completely unreliable (and the author is correct on this point, as careful scientific investigation has repeatedly shown). The analysis fits nicely into an outline only because McCampbell uses just that evidence that will fit nicely into his outline. References to scientific laboratory data consist of undocumented statements and unprovable assertions (and the author has had a copy of this review for three months without responding to the challenge to send me the references).

This is not science, and UFOlogy is not a distant cousin to geology, biology, and psychology. It is a kissing cousin, instead, to astrology, or so its standards and practices seem to indicate.

If this were only a lousy book by a mediocre writer, published by an obscure California book company, there would be no problem in ignoring it or forgetting it and moving on to any new attempts to convert the study of UFOs into a real science (a transformation I would enthusiastically welcome). But the reception of McCampbell's book by the UFO community indicates that most self-styled "UFOlogists" think highly of the book and consider it to be one of the best scientific analyses of UFOs ever written. The new *UFO Reporter* calls *UFOlogy* "a comprehensive examination quite beyond the scope and depth of most UFO books." Even the *samizdat* UFO literature in the USSR is now quoting McCampbell.

For the sake of the still unborn science of UFOlogy (unless, of course, it turns out to have been only a hysterical pregnancy), I hope that this is not the best that can be done. McCampbell has tried and failed to create a science of UFOs, and insofar as the UFO movement does not recognize his failure, it will be frustrated in its attempts to become a science and to deserve the word *UFOlogy*. This book, at least, does not deserve its pretentious title.

Transcendental Meditation Secret Manuscript. No author given. New Thought Education Society, Inc., Akron, Ohio (P.O. Box 69), 1976. $3.50 paper.

Reviewed by Marcello Truzzi

This remarkable document will be welcome to many. The title is meant in humor, and this manuscript is, to my knowledge, the first public revelation of the system allegedly used by TM instructors to give the supposedly individualized mantras to their clients. The mantra is the key word upon which the TM meditator is supposed to concentrate through its repetition. Until now the only available source of this information has been through enrollment in TM instruction at a cost of about $125. This slim volume purports to give one the full information needed for practicing TM. The manuscript claims that its information comes from an ex-instructor of TM, has been checked against the actual mantras used by many Transcendental Meditators, and offers several suggestions on how the reader can double-check the claims made in the book. And a money-back guarantee is offered if their information is found to be incorrect.

Since the TM movement derives much of its income from instruction fees, denial by the TM movement of these claims would not be surprising; and it is my understanding that the TM leadership is quite displeased with the existence of this manuscript. In any case, the benefits that might derive from meditation do not seem to be tied to any particular mantra system; so it seems unlikely that the public could be harmed by this manuscript's argument that the mantra system used by TM is actually far less personalized (it is supposed to be linked merely to one's age) than is generally believed. And if the manuscript is accurate—and I found it convincing—it is certainly a bargain for anyone interested in learning Transcendental Meditation.

The manuscript is published by an organization sympathetic to meditation and the claims of its benefits. The booklet is an exposé, but not a debunking, of TM. I think it significant that its information comes to the skeptical community from quarters friendly to TM. This fact demonstrates the need for skeptics about paranormal claims to keep abreast of information from competing groups of such claimants, if only because they often reveal important information about their "opposition." This is not to deny that meditation may provide an antidote to stress (though even this intelligent manuscript overstates the degree to which science has demonstrated such capabilities). But there seems little evidence to support the claim that TM offers more than other systems of meditation.

The claim that this "short-cut" to TM would provide the same benefits as the $125 approach needs to be empirically demonstrated. It may very well be the case that the psychological investment of paying $125 rather than the price of this manuscript for one's mantra may be important in the subjective appraisal of TM by the client. This is suggested by the psychological literature dealing with dissonance

reduction. In addition, the belief that one's mantra is both secret and personalized may also help in its effectiveness. Thus, the charge for one's mantra by the TM organization may, ironically, be a positive feature of the program for the client as well as the TM officials receiving the fee. Nonetheless, the large difference in fees would seem to indicate that the wise consumer should first try the lower-priced approach offered here.

The New Religious Consciousness. By Charles Y. Glock and Robert N. Bellah. University of California Press, Berkeley, Cal., 1976. 391 pp. $14.95.

Reviewed by Rosa Willy

The dearth of competent studies of the new religious and quasi-religious movements is at last being rectified. Apart from a number of excellent monographs and scholarly articles to redress the sensationalism of journalistic coverage, we now have some interesting collections providing a broad body of information on the beliefs and organization of many of these groups. Collections are almost inevitably uneven enterprises, and this one is no exception. There are excellent pieces here on the Human Potential Movement, by Donald Stone; Synanon, by Richard Ofshe; the Christian World Liberation front, by Donald Heinz; and the Church of Satan, by Randall Alfred; but some of the other chapters are extremely weak and, apart from descriptive detail, add little to our understanding of the structure or dynamics of these movements.

The most disappointing feature of this volume is the contributions of the two eminent editors. So preoccupied do they become with *explaining* "the new religious consciousness" that they never get around to demonstrating its existence or even providing clear criteria for recognizing it if we ever see it. For the essays of high quality by some of the contributors, then, this book is worth examining, but as a cohesive whole it fails in its purpose.

Recent Books Briefly Noted

Listings here do not preclude later detailed review in this journal.

Abel, E. L. *Moon Madness.* Greenwich, Conn.: Fawcett Gold Medal, 1976. 190 pp. $1.75. Paperback. Though highly uncritical, a most interesting work, the exceptional bibliography of which is alone worth the price of the book to anyone interested in the possible relations between the moon and terrestrial (including psychological-sociological) events.

Adrian, Werner. *Freaks: Cinema of the Bizarre.* New York: Warner Books, 1976. 111 pp. $5.95. Paperback. A largely pictorial survey of human oddities in the movies, many of which have influenced popular imagination about paranormal claims.

Alexander, Rolf. *The Renewing Power of Your Mind: Or the Doctor Alone Can't Cure You.* New York: Warner Destiny Books, 1976. 220 pp. $1.95. Paperback. An M.D.'s unorthodox attempt to wed Eastern mysticism with a quasi-psychoanalytic approach, resulting in a cosmic approach to self-healing.

Asimov, Isaac. *The Planet That Wasn't.* Garden City, N.Y.: Doubleday, 1976. 206 pp. $7.95. A collection of 17 science-fact essays from Asimov's columns in the *Magazine of Fantasy and Science Fiction.* They include some of the author's views on UFOs, witchcraft, astrology, and a number of other paranormal topics.

Avery, Kevin Quinn. *The Numbers of Life: The Hidden Power in Numerology.* Garden City, N.Y.: Doubleday Dolphin Books, 1977. Rev. ed. 290 pp. $3.95. Paperback. A general text on numerology and astronumerology for the believer. No scientific evidence offered.

Bharati, Agehananda. *The Light at the Center: Context and Pretext of Modern Mysticism.* Santa Barbara, Cal.: Ross-Erikson, 1976. 254 pp. $11.95. Hardbound. $4.95. Paperback. A highly recommended book by a well-recognized authority that intelligently and rigorously analyzes mysticism both anthropologically and philosophically. Both debunking and enlightening.

Bord, Janet. *Mazes and Labyrinths of the World.* New York: E. P. Dutton, 1976. 181 pp. $6.95. Paperback. A remarkable, illustrated review of natural and man-made curiosities, many of historical occult significance.

Bovet, Richard. *Pandaemonium.* Totowa, N.J.: Rowman and Littlefield, 1975 reissue (originally published 1684). 191 pp. $13.50. A reproduction, with introduction and notes by the late Montague Summers, of the remarkable early discourse on witchcraft and psychic investigation. A reproduction of the 1951 edition of this classic Protestant study of seventeenth-century witchcraft.

Boyd, Doug. *Swami*. New York: Random House, 1976. 331 pp. $10.00. A sympathetic but revealing portrait of many Eastern swamis and gurus now influential in the West, centering around Boyd's experience as an assistant to H. H. Swami Rama at the Menninger Foundation during a series of psychophysiological tests conducted there. An excellent journalistic introduction to these imported spiritual leaders.

Briggs, Katharine. *An Encyclopedia of Fairies: Hobgoblins, Brownies, Bogies, and Other Supernatural Creatures*. New York: Pantheon Books, 1977. 482 pp. $12.95. Originally titled *A Dictionary of Fairies* in its British edition, this is a scholarly and delightful compendium of folklore which should prove indispensable for both reference and pleasure to those interested in mythology. Dr. Briggs's book is entertaining and seems to leave no Frid's stone unturned.

Brown, Raymond Lamont. *Phantoms of the Theater*. Nashville and New York: Thomas Nelson, 1977. 154 pp. $6.95. Anecdotal commentary on ghost stories of the theatrical world throughout history presented in an entertaining fashion.

Browning, Norma Lee. *Omarr: Astrology and the Man*. Garden City, N.Y.: Doubleday, 1977. 311 pp. $8.95. A biography of the popular astrologer Sidney Omarr that contains many interesting details but is a typical publicity biography rather than a critical study. Omarr's exchanges with scientists discussed in this book should be of special interest to readers of *THE ZETETIC*.

Burl, Aubrey. *The Stone Circles of the British Isles*. New Haven, Conn.: Yale University Press, 1976. 410 pp. $20.00. A comprehensive and serious account of the prehistoric monuments—such as the well-known Stonehenge in Wessex—throughout Great Britain. Complete with maps and archaeological data, the book is a must for anyone interested in the archaeological puzzles of prehistoric Britain. Consideration is given to all the approaches made to these curious monuments, including occult and astronomical speculations. A technical but fascinating work.

Burnam, Tom. *The Dictionary of Misinformation*. New York: Ballantine Books, 1976. 334 pp. $1.95. Paperback. An entertaining but not always reliable compendium of common misinformation, with occasional misinformation presented in the antidotes. Many common beliefs about the paranormal are debunked.

Capaldi, Nicholas. *The Art of Deception*. Buffalo, N.Y.: Prometheus Books, 1975. 2nd ed. 200 pp. $3.95. Paperback. An excellent survey of illogic and false rhetoric of the sort frequently encountered in pseudoscientific writings.

Carter, Lin. *Lovecraft: A Look Behind the Cthulu Mythos*. New York: Ballantine Books, 1976 (reprinting of the 1972 edition). 198 pp. $1.50. Paperback. The supernatural fiction by Lovecraft has had influence upon a number of modern occultists and occult writers. The Church of Satan, in particular, reflects Lovecraftian imagery. This book constitutes a quick survey of that mythology for the reader unfamiliar with Lovecraft's books and stories and the existing biographical studies.

Charney, David H. *Magic: The Great Illusions Revealed and Explained*. New York: New American Library, Plume Books, 1976. 247 pp. $3.95. Paperback. An abridged version of Albert A. Hopkins's 1896 *Magic*, somewhat modernized by Charney. Those interested in this classic volume would obtain greater value

by purchasing the new complete reissue of Hopkins's book by Dover.

Christian, Roy. *Ghosts and Legends.* North Pomfret, Vt.: David & Charles, 1976. 156 pp. $8.50. A compilation of ghost-lore associated with places the tourist might visit in England, Wales, and Scotland. Not intended as a scholarly work but good entertainment.

Christopher, Milbourne. *Houdini: A Pictorial Life.* New York: Thomas Y. Crowell, 1976. 218 pp. $14.95. A beautifully illustrated collection of Houdini materials by his principal biographer, including many rare materials. An excellent supplement to Christopher's classic biography of the master escapologist and conjuror.

Clark, Hyla M., with photography by Paul Levin. *The World's Greatest Magic.* New York: Tree Communications, 1976. 206 pp. $14.95. A lavishly produced pictorial survey of 33 magicians, most contemporary, with most photographs in full color and an excellent descriptive text. Includes a special final section demonstrating tricks by the Amazing Randi that the reader can perform. A welcome book for magicians and fans, although there may be some controversy about great conjurors not included in the survey.

Clute, Cedric E., Jr. and Nicholas Lewin, eds. *Sleight of Crime: Fifteen Classic Tales of Murder, Mayhem, and Magic.* Chicago: Henry Regnery, 1977. 301 pp. $4.95. Paperback. An excellent collection of fiction involving conjurors, many stories dealing with the pseudoparanormal. Intertwined with factual items from the history of prestidigitation, this anthology, like the victims in its stories, is very well executed.

Cremer, Robert. *Lugosi: The Man Behind the Cape.* Chicago: Henry Regnery Co., 1976. 307 pp. $9.95. An excellent, sympathetic, and revealing biography of the man best known for his portrayals of Count Dracula in many horror (and sometimes horrible) films.

Crapanzano, Vincent, and Vivian Garrison, eds. *Case Studies in Spirit Possession.* New York: John Wiley and Sons, 1977. 457 pp. $21.50. A major collection of anthropological studies examining spirit possession in a wide variety of cultures, from the United States to Morocco, Egypt, Malaya, Brazil, and Puerto Rico. Indispensable for serious researchers in this area.

Crummere, Maria Elise. *Sun-Sign Rising.* New York: Ballantine Books, 1977. 274 pp. $1.95. Paperback. An earlier version of this rather typical popular astrology book was released in 1969 as *Your Sun Personality*. No scientific claims made.

Daner, Francine Jeanne. *The American Children of Krsna: A Study of the Hare Krsna Movement.* New York: Holt, Rinehart and Winston, 1976. 118 pp. $3.00. A brief but excellent anthropological ethnography and introduction to one of America's more bizarre religious youth cults.

De Camp, L. Sprague. *The Ancient Engineers.* New York: Ballantine Books, 1977 (orig. ed. 1963). A welcome reprinting of the excellent survey of early technology that indirectly answers many of the pseudoriddles posed by today's purveyors of phony archaeology. Highly recommended.

Dengrove, Edward, ed. *Hypnosis and Behavior Therapy.* Springfield, Ill.: Charles C. Thomas, 1976. 406 pp. $26.75. An excellent compendium of technical studies that attempts to interrelate behavior and hypnotherapy and thereby casts light on both areas.

De Vore, Nicholas. *Encyclopedia of Astrology.* Totowa, N.J.: Littlefield, Adams, 1976 (orig. pub. 1947). 435 pp. $4.95. Paperback. A kind of concordance for the serious believer in astrology, this sourcebook by a former president of the Astrological Research Society should also be in any critic's library.

Donnelly, Ignatius. *Atlantis: The Antediluvian World.* New York: Dover, 1976 (orig. pub. 1882). 490 pp. $5.00. Paperback. This welcome reissue includes an excellent new introduction by E. F. Bleiler that puts Donnelly's eccentric but fascinating views in modern perspective. Though Donnelly was wrong in all of his major conclusions, the book remains great fun, and its influences on later eccentric claims (especially those of the cataclysmic theorists like Hoerbiger, Bellamy, and Velikovsky) are evident.

Ebon, Martin, ed. *The Satan Trap: Dangers of the Occult.* Garden City, New York: Doubleday, 1976. 276 pp. $7.95. A useful anthology of articles dealing with some of the dangers associated with involvement with paranormal beliefs, mostly by those sympathetic to the claims but recognizing the pitfalls of over-involvement.

Editors of *Penseé. Velikovsky Reconsidered.* Garden City, N.Y.: Doubleday, 1976. 260 pp. $8.95. A compilation of papers by scholars who favor the theories of the controversial author of *Worlds in Collision* and its sequels. Attempts a defense of Velikovsky's positions against the many criticisms of them.

Eliot, Alexander, et al. *Myths.* New York: McGraw-Hill, 1976. 320 pp. $39.95. A massive compilation of art concerning the world's classic mythologies, grouped in terms of common cultural themes. Text by well-known authorities, including Mircea Eliade and Joseph Campbell. Mainly a coffee-table book, but of scholarly value.

Farson, Daniel. *The Man Who Wrote* Dracula: *A Biography of Bram Stoker.* London: Michael Joseph, 1975. 240 pp. $8.95. A most interesting biography of the gothic-novel author about whom little has been known. *Dracula* brought Stoker posthumous fame after a life eclipsed by the actor Sir Henry Irving, whom he managed and served.

Fell, Barry. *America B.C.: Ancient Settlers in the New World.* New York: Quadrangle, 1976. 312 pp. $12.50. A highly controversial but most interesting study that claims Celtic origins of numerous archaeological remains in New England and Oklahoma, a thesis thus far generally rejected by archaeologists.

Fireman, Judy, ed. *Cat Catalog: The Ultimate Cat Book.* New York: Workman, 1976. 352 pp. $6.95. Paperback. A compendium of lore and fact about felines, including much material on superstitions, myths, and paranormal matters associated with cats.

Furneaux, Rupert. *Ancient Mysteries.* New York: McGraw-Hill, 1977. 229 pp. $7.95. Another among the many recent pseudo-archaeological-anthropological surveys of allegedly inexplicable phenomenona suggested to be the remnants of extraordinary events.

Gardner, Martin. *The Incredible Dr. Matrix: The World's Greatest Numerologist.* New York: Charles Scribner's Sons, 1976. 256 pp. $8.95. A collection of mathematical diversions and fantasies by the prolific columnist on such matters for *Scientific American*. The occult romp with pyramid power is alone worth the price of the book.

Gibson, Walter B. *The Original Houdini Scrapbook.* New York: Corwin Sterling, 1976. 224 pp. $7.95. Paperback. A handsome collection of Houdiniana, compiled by the great magician's friend and collaborator and primary authority on Houdini and his legend. An excellent addition to a growing literature.

Goldson, Will. *Exclusive Magical Secrets.* New York: Dover, 1977 (reissue of the undated, circa 1930, edition). 506 pp. $4.50. Paperback. Another classic conjuring volume in the Dover series of reprints, and one of special interest to those interested in early-twentieth-century conjurors and their magic.

Goleman, Daniel. *The Varieties of the Meditative Experience.* New York: E. P. Dutton, 1977. 131 pp. $3.50. Paperback. Psychologist Goleman compares and contrasts eleven "meditation paths," from Hindu Bhakti to Krishnamurti's Choiceless Awareness. Emphasis is placed on their unity of method and goal of transformation, as Goleman interprets them.

Grinsell, Leslie V. *Folklore of Prehistoric Sites in Britain.* North Pomfret, Vt.: David & Charles, 1976. 320 pp. $19.95. An excellent guide and reference book, full of fascinating cultural commentary, to the hundreds of historic sites commonly associated with supernatural and occult folklore throughout Britain. Highly recommended to those planning travel in Great Britain to visit such occult landmarks.

Gundella (Marion Kuclo). *The Werewolf of Grosse Pointe and Other Stories.* Detroit, Mich.: Earsight Products, 1976. 81 pp. $1.95. Paperback. A collection of folk tales of the supernatural from the area surrounding Detroit. Retold by a professional witch.

Haining, Peter, ed. *The Black Magic Omnibus.* New York: Taplinger, 1976. 415 pp. $10.95. Like most of Peter Haining's occult-fiction collections, this is a carefully researched and rich collection of stories dealing with black magic, many of them quite obscure. Highly entertaining and most interestingly arranged and introduced. Recommended fiction by a knowledgeable anthologist.

Hallam, Jack. *Ghosts of the North.* North Pomfret, Vt.: David & Charles, 1976. 135 pp. $7.95. A guide for the tourist and student of the paranormal to the ghostlore of Northern England in county-by-county tour that tells "how to get there." Uncritical narratives, but fascinating presentation of folklore.

Hardy, Alister. *The Biology of God.* New York: Taplinger, 1976. 238 pp. $9.95. An attempt to integrate zoology and theology into a "natural theology" that includes the claims of parapsychology.

Hasbrouck, Muriel Bruce. *The Pursuit of Destiny.* New York: Warner Destiny Books, 1976. 302 pp. $1.95. Paperback. A reprinting of the 1941 attempt to combine astrology with the Tarot as a divinatory system. An imaginative but nonscientific foray.

Hervey, Michael. *UFOs: The American Scene.* New York: St. Martin's, 1976. 224 pp. $7.95. A largely uncritical pro-UFO book that favors the extraterrestrial-origin hypothesis.

Heyn, Ernest V. *Fire of Genius: Inventors of the Past Century.* Garden City, N.Y.: Anchor Books, 1976. 340 pp. $12.95. A fascinating survey of inventions and inventors since 1872. Based on the files of *Popular Science Monthly.*

Higham, Charles. *The Adventures of Conan Doyle: The Life of the Creator of Sherlock Holmes.* New York: W. W. Norton, 1976. 368 pp. $9.95. An important

new biography that casts much new light on the remarkable man who brought us Sherlock Holmes and who for many epitomizes rationality, but who also espoused spiritualism and the existence of fairies.

Hilgard, Ernest R., and Josephin R. Hilgard. *Hypnosis in the Relief of Pain.* Los Altos, Cal.: William Kaufmann, 1975. 262 pp. $10.00. A major work on a topic of central concern to those interested not only in hypnosis but in suggestibility explanations for faith healing, acupuncture anaesthesia, and so on.

Holroyd, Stuart. *Psi and the Consciousness Explosion.* New York: Taplinger, 1977. 235 pp. $9.95. Accepting the claims of the parapsychologists, Holroyd tries to relate these to the "frontier" (skeptics might prefer "fringe") work in physics, anthropology, and psychology. Holroyd argues that a "new gnosis" is emerging that will integrate all these.

Hopkins, Albert A., ed. *Magic: Stage Illusions, Special Effects, and Trick Photography.* New York: Dover, 1976 (orig. pub. 1896). 556 pp. $5.00. Paperback. A fine reprint of one of the classic works on conjuring. Contains much useful knowledge for anyone interested in the artificial presentation of evidence for paranormal phenomena.

Hurwood, Bernhardt J. *The Vampire Papers.* New York: Pinnacle Books, 1976. 192 pp. $1.50. Paperback. An interesting popular account that is particularly useful for its presentation of contemporary materials on what the author terms "hemothymia" or a "sanguiniverous psychosis."

John, Laurie. *Cosmology Now.* New York: Taplinger, 1976. 168 pp. $10.95. A remarkable collection of essays by ten scholars who debate the latest scientific views on cosmology, many of which are highly controversial and radical science. Highly stimulating and minimally technical.

Judah, J. Stillson. *Hare Krishna and the Counterculture.* New York: John Wiley and Sons, 1974. 301 pp. $13.95. A sympathetic account of the views and growth of the International Society for Krishna Consciousness. Dr. Judah, a historian of religion, reveals their search for meaning and places the movement in a general context.

Keys, John D. *Chinese Herbs: Their Botany, Chemistry, and Pharmacodynamics.* Rutland, Vt.: Charles E. Tuttle, 1976. 388 pp. $15.00. A useful but technical guide to Chinese herb medicine. The book should prove valuable to researchers interested in validating the use of such folk practices for their possible value to Western medicine.

Kieckhefer, Richard. *European Witch Trials: Their Foundations in Popular and Learned Culture, 1300-1500.* Berkeley: University of California Press, 1976. 181 pp. $13.50. An important historical analysis of the interrelationships between popular witchcraft practices and the imputations of diabolism by the learned tradition. Based on careful analysis of the trial materials.

King, Francis, and Stephen Skinner. *Techniques of High Magic.* New York: Warner Destiny Books, 1976. 254 pp. $1.95. Paperback. A do-it-yourself guide to ritual magic that represents an eclectic but well-researched presentation. A highly commercial book that will probably disappoint those who have had respect for some of Francis King's earlier, more serious books on Western occultism.

Kors, Alan C., and Edward Peters, eds. *Witchcraft in Europe, 1100-1700: A Documentary History.* Philadelphia: University of Pennsylvania Press, 1972. 382 pp. $7.95. Paperback. A scholarly collection of documents, many newly translated, with excellent selections and illustrations. Splendid introductions make this source book a first-rate work.

Krippner, Stanley. *Song of the Siren: A Parapsychological Odyssey.* New York: Harper & Row, 1976. 311 pp. $12.50. A prominent parapsychologist's autobiographical portrait of his "adventures." Though skeptics will remain unpersuaded by Krippner's claims for psi, there is much useful information here.

Lamb, Geoffrey. *Victorian Magic.* Boston: Routledge & Kegan Paul, 1976. 136 pp. $10.00. A welcome work on a neglected but fascinating period in the history of conjuring in Britain. The book does not expose the secrets used by such remarkable magicians as Professor Anderson, the "Wizard of the North," J. N. Maskelyne, the Davenport Brothers, and others, but readers will enjoy the stories about and biographies of some extraordinary masters of deception.

Lande, Nathaniel. *Mindstyles/Lifestyles.* Los Angeles, Cal.: Price/Stern/Sloan, 1976. 496 pp. $7.95. Paperback. A general, catalog-like inventory of contemporary "life-changing philosophies," including movements, gurus, psychics, and quasi-therapists of all varieties (medical, spiritual, and political), with statements by many of the practitioners and addresses.

Law, Donald. *A Guide to Alternative Medicine.* Garden City, N.Y.: Dolphin Books, Doubleday, 1976. 228 pp. $2.50. Paperback. An uncritical but useful survey of some 60 alternative forms of healing, from acupuncture to yoga. Includes both legitimate and quack approaches, with no guide to discriminating one from the other, but readers will enjoy seeing a wide panorama of methods that is unavailable elsewhere.

Lee, Albert. *Weather Wisdom.* Garden City, N.Y.: Doubleday, 1976. 180 pp. $6.95. A highly readable presentation of meteorological folklore, including analysis and explanations for those whose value has been demonstrated.

Leek, Sybil. *Sybil Leek's Book of the Curious and the Occult.* New York: Ballantine Books, 1976. 181 pp. $1.75. Paperback. A general survey of some real, but most merely alleged, bizarre and paranormal phenomena by the well-known witch and astrologer.

Leonard, George H. *Somebody Else Is on the Moon.* New York: David McKay, 1976. 232 pp. $9.95. An attempt to prove extraterrestrial uses of the earth's moon through evidence claimed to be present in NASA lunar photographs.

LeShan, Lawrence. *Alternate Realities.* New York: M. Evans, 1976. 232 pp. $7.95. A philosophic ramble by parapsychologist LeShan, in which he argues for four distinct modes of reality in which man lives and which together account for paranormal and psychic events in the normal or natural world. An interesting argument, given LeShan's exotic premises that accept psychic and paranormal events as real.

Melyan, Gary G., and Wen-kuang Chu. *I-Ching: The Hexagrams Revealed.* Rutland, Vt.: Charles E. Tuttle, 1977. 182 pp. $7.50. A modernized and Westernized "handbook" for using the I-Ching, a traditional Chinese method of divination. No evidence is presented for the validity of the approach; belief is presumed.

Menzel, Donald H., and Ernest H. Taves. *The UFO Enigma: The Definitive Explanation of the UFO Phenomenon.* Garden City, N.Y.: Doubleday, 1977. 297 pp. $8.95. A thoroughgoing debunking of UFO mythology that will be reviewed in detail in a future issue.

Merton, Robert K. *Sociological Ambivalence and Other Essays.* New York: Free Press, 1976. 287 pp. $12.95. A new and major collection of essays by a noted sociologist of science.

Mitchell, Edgar D., sponsor (ed. by John White). *Psychic Exploration: A Challenge for Science.* New York: G. P. Putnam's Sons, Capricorn Books, 1976. 708 pp. $4.95. Paperback. A massive compendium of articles on all facets of psi research by thirty contributors, all sympathetic to parapsychology's claims. A valuable source book for all those interested in psi research.

Moskowitz, Sam. *Strange Horizons: The Spectrum of Science Fiction.* New York: Charles Scribner's Sons, 1976. 298 pp. $8.95. Numerous essays on the history of science fiction, several of which will be of special interest to those interested in science and the paranormal. Moskowitz's study of Charles Fort and his relationship to science fiction is particularly valuable.

Needleman, Jacob. *A Sense of the Cosmos: The Encounter of Modern Science and Ancient Truth.* New York: E. P. Dutton, 1977. 179 pp. $3.50. Paperback. An essentially metaphysical work, despite its title, on "microcosmic man" and his relation with the universe.

Nielsen, Greg, and Joseph Polansky. *Pendulum Power.* New York: Warner Destiny Books, 1977. 190 pp. $1.95. Paperback. A general survey of dowsing written for the believer. Contains no contrary evidence and offers no simpler explanations, but some interesting anecdotal material. Lacks scientific merit.

Noel, Daniel. *Seeing Castaneda: Reactions to the "Don Juan" Writings of Carlos Castaneda.* New York: G. P. Putnam's Sons, 1976. 250 pp. $7.95. Hardbound. $3.95. Paperback. An informative anthology of essays, reviews, and commentary on the pseudo-anthropological writings of Carlos Castaneda.

Noorbergen, René. *The Soul Hustlers.* Grand Rapids, Mich.: Zonervan, 1976. 190 pp. $5.95. An "exposé" of psychics and astrologers by biblical injunction and the use of a vocal-stress lie detector. Mainly of interest in its coverage of Jeane Dixon, since the author earlier wrote a flattering biography of the alleged seeress whom he attacks here.

Numbers, Ronald L. *Prophetess of Health: A Study of Ellen G. White.* New York: Harper & Row, 1976. 271 pp. $10.00. A remarkable biography of the health reformer and leader of the Seventh Day Adventists that reveals much new material, including writings prior to her visions that demonstrate embarrassing parallels to her own alleged revelations.

Ouspensky, P. D. (trans. by A. L. Pogossky). *The Symbolism of the Tarot: Philosophy of Occultism in Pictures and Numbers.* New York: Dover, 1976. 63 pp. $1.50. A reprint of the 1913 edition of an occult "classic" supplemented with pictures of the Pamela C. Smith-A. E. Waite version of the major arcana of the tarot cards.

Parker, Derek, and Julia Parker. *The Immortals: The Mysterious World of Gods, Goblins, Fairies, Leprechauns, Vampires, Witches, and Devils.* New York:

McGraw-Hill, 1976. 208 pp. $19.95. A lavish "coffee-table" book with an interesting but uninspired text and photographs and art reproductions, most of which are available in earlier and similar works.

Pelletier, Kenneth R., and Charles Garfield. *Consciousness: East and West.* New York: Harper Colophon, Harper & Row, 1976. 308 pp. $4.95. Paperback. Two clinical "humanistic" psychologists survey so-called altered states of consciousness, including psychotic, psychoactive, and meditative states, and their uses in therapy.

Pepper, Elizabeth, and John Wilcock. *Magical & Mystical Sites: Europe and the British Isles.* New York: Harper & Row, 1977. 304 pp. $10.95. An "armchair excursion," rather than a travel guide, that makes entertaining reading about a wide variety of folklore.

Pointer, Michael. *The Sherlock Holmes File.* New York: Clarkson N. Potter, 1976. 168 pp. $10.00. A handsome addition to Sherlockian collections. Only slight information on Sir Arthur Conan Doyle, Holmes's creator and a leading figure in the Spiritualist movement.

Polansky, Joseph. *Sun Sign Success: Your Astrological Pathway to Better Living.* New York: Warner Destiny Books, 1977. 221 pp. $1.95. Paperback. A nonscientific approach for the faithful, consisting primarily of articles reprinted from astrology magazines.

Rajness, Bhagwan Shree. *Only One Sky: On the Tantric Way of Tilopa's "Song of Mahadmudra."* New York: E. P. Dutton, 1976. 253 pp. $3.95. Paperback. Philosophizing-theologizing of an imported "Tantric Buddhist Master," in the line of Krishnamurti and Gurdjieff, for the spiritual "seeker." Typical of the genre.

Rydell, Wendy, and George Gilbert. *The Great Book of Magic.* New York: Henry N. Abrams, 1976. 271 pp. $19.95. An excellent and lavishly illustrated introduction to the history and practice of conjuring. Includes 150 tricks (including mentalist and spiritualist effects) and some excellent color photographs of modern occultists. Highly recommended for the beginner and for children.

St. Clair, David. *Pagans, Priests, and Prophets: A Personal Investigation into the Living Traditions of Occult Mexico.* Englewood Cliffs, N.J.: Prentice-Hall, 1976. 218 pp. $8.95. A personal survey of the Catholic-mystical, spiritualist, and pagan-occult traditions of Mexico. A somewhat sensational but entertaining "tour" designed for a popular audience.

Schermann, Rafael. *The Secrets of Handwriting.* New York: Warner Destiny Books, 1976. 172 pp. $1.95. Paperback. A nonscientific study of what is termed an "intuitive art."

Schul, Bill. *The Psychic Power of Animals.* Greenwich, Conn.: Fawcett Gold Medal, 1977. 223 pp. $1.75. Paperback. An uncritical and sensationalized survey of alleged psi among animals. Mostly interesting but unpersuasive anecdotal evidence like that in the half-dozen similar books previously published.

Shadowitz, Albert, and Peter Walsh. *The Dark Side of Knowledge: Exploring the Occult.* Reading, Mass.: Addison-Wesley, 1976. 305 pp. $5.95. A largely nonskeptical, but generally useful and careful, introduction to a wide range of paranormal claims. Possibly the best of the recently published general surveys of the paranormal and occult from a nondebunking perspective.

Smith, Adam. *Powers of Mind*. New York: Ballantine Books, 1976. 419 pp. $1.95. Paperback. A highly entertaining and largely informative tour of the work of those conducting research into and making a living off of claims of the paranormal. Journalistic and, for the most part, noncommittal about the claims themselves. An excellent introduction for the novice looking for a pleasant but noncritical survey.

Soyka, Fred, with Alan Edmonds. *The Ion Effect: How Air Electricity Rules Your Life and Health*. New York: E. P. Dutton, 1977. 181 pp. $7.95. A speculative and messianic book that argues the dangerous effects of allegedly excessive positive ions in the air.

Stearn, Jess. *A Matter of Immortality: Dramatic Evidence of Survival*. New York: Atheneum, 1976. 300 pp. $9.95. Another unreliable but entertaining occult book by the popular journalist-writer on practitioners of the paranormal from Cayce to Dixon.

Steiger, Brad. *Gods of Aquarius: UFOs and the Transformation of Man*. New York: Harcourt Brace Jovanovich, 1976. 264 pp. $8.95. Wild and weird pseudo-philosophizing on the implications of the UFO intelligence and its cosmic implications for the future evolution of man by probably the most prolific author of popular works on the paranormal. Steiger should surely be given some sort of special award by the science-fiction writers of America.

Steiger, Brad, ed. *Project Blue Book: The Top Secret UFO Findings Revealed*. New York: Ballantine Books, 1976. 423 pp. $1.95. Paperback. A highly edited selection of documents with comments and conclusions supplied in typical sensational manner by Mr. Steiger.

Story, Ronald. *The Space-Gods Revealed: A Close Look at the Theories of Erich von Däniken*. New York: Harper & Row, 1976. 139 pp. $7.95. A major debunking of the eccentric views of von Daniken through careful examination of the evidence. Highly recommended.

Targ, Russell, and Harold Puthoff. *Mind-Reach: Scientists Look at Psychic Ability*. New York: Delacorte Press/Eleanor Friede, 1977. 230 pp. $8.95. An incredible book that claims the first completely successful and universally replicable set of experiments to demonstrate "remote viewing" or telepathy/clairvoyance. To be reviewed in detail in a future issue.

Tart, Charles T. *Learning to Use Extrasensory Perception*. Chicago: University of Chicago Press, 1976. 170 pp. $3.95. The well-known writer on altered states of consciousness attempts to demonstrate psi learning in the laboratory. To be reviewed in a future issue.

Toth, Max, and Greg Nielsen. *Pyramid Power*. New York: Warner Destiny Books, 1976. Rev. ed. 257 pp. $1.95. Paperback. The case for the alleged paranormal capabilities of pyramid constructions. Features Karl Drbal's essay describing his "discovery" of "pyramid power."

Van Deusen, Edmund. *Astrogenetics: How Your Parents' Genes and Your Season of Birth Can Influence Your Life*. Garden City, N.Y.: Doubleday, 1976. 203 pp. $7.95. An attempt to demonstrate the validity of astrology through a correlational study of a type that has been conducted in the past with negative results, a fact of which the author seems unaware. Full review in a future issue.

Velikovsky, Immanuel. *Peoples of the Sea.* Garden City, N.Y.: Doubleday, 1977. 261 pp. $10.00. The concluding volume of Velikovsky's "Ages in Chaos" series, in which a radical reconstruction of ancient history is presented. Includes the claim that Ramses III drove back Greeks and Persians in the fourth century.

Webb, James. *The Occult Establishment.* La Salle, Ill.: Open Court, 1976. 535 pp. $19.95. The much-awaited concluding volume to the study begun with the author's *The Occult Underground.* To be reviewed in detail in a future issue.

Webre, Alfred L., and Phillip H. Liss. *The Age of Cataclysm.* New York: G. P. Putnam's Sons, Capricorn Books, 1975. 303 pp. $3.50. Paperback. A wild amalgam of predictions for cataclysm from geological and psychic sources and a call for a new global integration of mankind. Written by a lawyer and an experimental psychologist, the book's thesis about political change is more convincing than the reasons given for expecting the disasters projected for 1998-2001.

White, Stewart Edward. *The Betty Book.* New York: E. P. Dutton, 1977 (orig. pub. 1937). 302 pp. $3.50. Paperback. A reprinting of a parapsychological discourse on the "psychic excursions" of a trance medium, intended to "aid seekers after spiritual light."

Wilcock, John. *An Occult Guide to South America.* New York: Laurel Tape & Film/Stein and Day, 1977. 222 pp. $5.95. Paperback. A region-by-region guidebook to occult sites and areas in South America. Intended for the interested tourist and presented uncritically.

Wilson, Colin. *Strange Powers.* New York: Vintage Books, 1976 ed. 163 pp. $1.95. Paperback. A narrative account of three practitioners of the paranormal who are accepted uncritically by an author best known for his existentialist writings.

Würf, Karl. *To Serve Man: A Cookbook for People.* Philadelphia: Owlswick Press, 1976. 94 pp. $6.95. A cannibal's cookbook, itself indigestible.

Young, Samuel H. *Psychic Children.* Garden City, N.Y.: Doubleday, 1977. 182 pp. $6.95. An uncritical and unpersuasive survey of anecdotal evidence for children with alleged psychic abilities. Not the first such book and probably not the last.

—M.T.

Random Bibliography on the Occult

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Ebon, Martin. "The Exorcisms of Five Living Americans." *Psychic World,* May 1977, pp. 82-84. (Review of M. Martin's *Hostage to the Devil.*)

Gardner, Martin. "Supergull." *New York Review of Books,* 17 March 1977, pp. 18-20. (Review of Russell Targ and Harold Puthoff's *Mind-Reach.*)

From Our Readers

Biorhythms correction

Recently an aspect of my article on biorhythms was brought to my attention that upset me, and probably will require an "erratum" statement. A friend of mine pointed out that the article mentions 28-, 33-, and 38-day biorhythm cycles. The theory, of course, calls for 23-, 28-, and 33-day cycles. At first I thought this was just a simple misprint, but then I found the same mistake in my own manuscript from which you published the article.

I then went back to my original data and confirmed that all my material had been gained correctly from the 23 to 33-day cycles rather than the published ones. At this point I am unable to explain how I made the original misprint, nor how I overlooked it in proofreading before I sent it to you. Because I was so upset by this very basic mistake, I rechecked the charts of the main statistical tabulations and found that they are the same that my original materials contain; so what I am left with is a regrettable and embarrassing misprint that is quite clearly my fault. I want to apologize to anyone who might have had difficulties because of my error.

A. James Fix
Univ. of Nebraska Med. Center
Omaha, Nebr.

We all feel foolish about this oversight and apologize to our readers but are pleased that the general conclusions in the article stand. Interestingly, no advocates of biorhythms called this error to our attention.—Ed.

More on astrology

When I criticized the 186 signers of "Objections to Astrology" (see *The Humanist,* September/October 1975) my intent was *not* to defend astrologers' claims, which I find unconvincing; and I certainly share the concern of the signers that the public takes these claims more seriously than they deserve to be taken. In the battle against pseudoscience, however, it is possible that the representatives of science may not always conduct themselves in a rigorously scientific manner. For this reason I questioned the scientific rigor of "Objections to Astrology" in an article entitled "Scientists as Experts: Observations on 'Objections to Astrology'" (*THE ZETETIC,* vol. 1, no. 1). I questioned the signers' qualifications, procedures, and assertions and indicated that I thought the overall statement fell short of scientific ideals. I had hoped that the specific questions I raised would be answered by some of the signers. Instead of answering my questions, however, the response by Paul Kurtz and Lee Nisbet (in the same issue of *THE ZETETIC*) misrepresents my views and even accuses me of careless scholarship and libel. It is ironic that of the two minor errors which they mention, one was their own; I correctly

cited the title of a *New York Times* article which they stated I had misquoted. My other error was a mistake by one day in the date of the first media coverage of "Objections"; I was unaware of an earlier Associated Press story. However, in pointing out this error, they give the date for the A.P. article as 1976 when it obviously should be 1975. Thus in the same paragraph in which they accuse me of careless scholarship, they provide two examples of it themselves. Their charge of libel is simply false, since I did not make the assertions they allege. But their article contains far more serious distortions. Lest some readers be put under false apprehensions, I feel obliged to contrast my original arguments with the presentation of these views by Professor Kurtz and Dr. Nisbet.

Through what appears to me an incomprehensible reading of my arguments, Professor Kurtz and Dr. Nisbet presented me as stating that astrologers are more qualified to act as experts on astrology than astronomers and astrophysicists. They even went so far as to state that I feel that astronomers and astrophysicists are unqualified to comment, and cannot even become competent to comment, on astrology (p. 48). Such a position, I agree, would have little merit. But I never took it. Although I certainly discussed astrology, I never mentioned astrologers; the word does not even appear in my article. In the article of Professor Kurtz and Dr. Nisbet, however, it occurs twelve times; this in itself might indicate that the arguments to which they addressed themselves were not mine. My statement that an expert's testimony ought to be in the exact area of his competence (p. 39) was taken by them to imply that I would allow testimony on astrology only by astrologers. It is apparent that Professor Kurtz and Dr. Nisbet have confused the question of *technical competence* with that of *formal training*. It is this confusion which allows them to state that I would disallow those without a certificate from an astrological association to act as experts on astrology.

The very title of their article, "Are Astronomers and Astrophysicists Qualified to Criticize Astrology?" shows that they have failed to comprehend one of my central points. In the Sacco and Vanzetti case, which I used to illustrate the need for expertise in the exact area of testimony, the same sort of general background qualifications which Professor Kurtz and Dr. Nisbet feel are sufficient were shown to be totally inadequate; those with impressive titles were shown to be less expert than Calvin Goddard, who had mastered the area that was really relevant, forensic ballistics. Just as it did not follow in the Sacco and Vanzetti case that experts on *firearms* would necessarily be experts on forensic ballistics (a more specialized area), it does not follow that all astronomers and astrophysicists are equally suitable to act as experts on astrology. It is those members of the astronomical community who have most intensively studied claims of stellar and planetary influences on human life whose expertise is most relevant to the present debate.

I proposed two alternative criteria for expertise on astrology: (1) those "researchers active in the study of astrology through scientific experimentation, clinical observation, and statistical analysis" and (2) "expertise gained through familiarizing oneself with the relevant studies, literature, and so forth" (p. 42). Neither of these criteria, it seems to me, would imply that *astrologers* would be particularly qualified to act as experts on astrology, since their interests are generally more in the direction of occult traditions than scientific study. Yet I am presented as advocating that "astrologers may speak out and those scientists who disagree

with them should not be allowed to criticize them" (p. 49). How did such a distortion occur? Apparently it took place because Professor Kurtz and Dr. Nisbet, rather than quoting my exact words, translate my first criterion as "technical specialists in astrology (astrologers)" (p. 49). It is evident that this transformation is unwarranted if we substitute the word *crime* for *astrology*. Thus, instead of "researchers active in the study of crime through scientific experimentation, clinical observation, and statistical analysis" (criminologists), we would have "technical specialists in crime (criminals)." Surely Professor Kurtz and Dr. Nisbet would recognize the difference between criminologists and criminals.

After misinterpreting my first criterion, using it as a straw man, and objecting to its excessive narrowness, Professor Kurtz and Dr. Nisbet then note that I proposed an alternative criterion, which they wrongly stated as repudiating the first. Since many researchers also read the literature of their specialty, it would seem that the two criteria are not contradictory and that an individual might well meet both of them. It is true that I would consider knowledge of the literature alone less satisfactory than actual research in astrology, but I did note that knowledge of the literature frequently allows one to be an "excellent critic" of research by others.

To appreciate that my criteria—far from being too restrictive—are in fact minimal, consider what it would mean to present someone as an expert in an area in which he had neither done research nor was conversant with the relevant literature. It must be obvious, then, that the qualifications I proposed are a bare, but necessary, minimum.

Professor Kurtz and Dr. Nisbet accuse me of suggesting that *all* astronomers and astrophysicists are unqualified to discuss or criticize astrology, which is certainly closely related to astronomy. On the contrary, I feel that astronomy or astrophysics can provide an excellent background for expertise in astrology—but I would also demand that the person presenting himself as an expert be conversant with the relevant literature. A doctorate in astronomy would provide a good preparation for expertise in stellar interiors, but members of the astronomical community would expect someone presenting himself as an expert in stellar interiors to have more specific qualifications than just a Ph.D. in astronomy! (Would Professor Kurtz and Dr. Nisbet be less demanding?) Just so with astrology. If someone is to present himself as an expert on the correlation (or noncorrelation) of planetary movements and the births of champions, we would expect him to have read the relevant literature on any claimed correlations between such movements and births; we should not merely accept reasoning on a priori grounds.

It should be noted that I never claimed that *none* of the signers were familiar with the relevant literature, as Professor Kurtz and Dr. Nisbet mistakenly state (p. 48), in an exaggeration that does little credit to their training in philosophy. What I asked was *how many* of them were familiar with it. That is a legitimate question, in view of the apparent contradiction between some of the results reported in the literature and the sweeping generalizations in "Objections." Two such generalizations which I found especially ill-considered were the following: "there is no scientific foundation for astrology's tenets" and "it is simply a mistake to imagine that the forces exerted by stars and planets at the moment of birth can in any way shape our futures." As I pointed out in my article, the data presented by Michel Gauquelin (*The Humanist*, January/February 1976) suggest that there is a relation, for instance, between the position of the

planets at birth and success in sports. His results have been corroborated on another sample of athletes by the Belgian group Para, although the members of this group denied Gauquelin's interpretation of them (*The Humanist*, January/February 1976). In several of his books Mr. Gauquelin has indicated that there are relations between specific planets and specific professions of a sort that would not surprise those familiar with astrological traditions. This does *not* mean that his data show popular astrology and its horoscopes to be correct; but the existence of Gauquelin's data suggests that there might be *some* scientific foundation for astrology's tenets. A more accurate statement in the light of Gauquelin's data might have been "planetary influences on human life appear to be weak." Why could not such a more qualified statement have been included in "Objections to Astrology"? It should also be noted that numerous other studies alleging to support astrology have been conducted. Since no methodological critique of these studies exists, the sweeping statement that "there is no scientific foundation for astrology's tenets" seems even less justified.

One of the critical points of disagreement between me and Professor Kurtz and Dr. Nisbet is whether the "strong evidence" against astrology to which "Objections" referred was presented. Two articles, by Bart Bok and Lawrence Jerome, both signers of the statement, appeared in the same issue as the statement. I mentioned only the article by Mr. Jerome in my critique, since Professor Bok's article avoided treating empirical studies. Professor Kurtz and Dr. Nisbet have rightly charged me with an oversight for not mentioning both articles. I still feel, nonetheless, that "the evidence on which an independent decision could be made is scarcely presented" (p. 44). There are two reasons for this view:

(1) Evidence used as the *basis* for a judgment is not the same as evidence which merely supports it. When 186 scientists use their collective authority to state that there is "strong evidence" that there is no scientific basis for astrology, we have a right to know what evidence they considered. The accompanying articles tell us what evidence Professor Bok and Mr. Jerome considered—but what about the other 184 signers? At the very least, we have a right to know whether they have personally studied the empirical evidence that suggests some planetary influences on human life. If they studied this evidence and found it wanting, this should be explicitly stated. But, I suspect that most of the signers of the document added their names because of theoretical arguments, without consideration of the empirical literature. It is true, as Professor Kurtz and Dr. Nisbet point out, that I can offer little direct evidence for this assertion. I cannot understand, however, why Professor Kurtz, who was one of the initiators of the statement, does not simply tell us what procedures were used to screen signers of the document. I find it disturbing that in spite of my questions about the signers' knowledge of the specialized empirical literature he is not more forthcoming on this point, but merely stresses the general background qualifications of the signers.

(2) When I wrote my original article I assumed that the articles by Professor Bok and Mr. Jerome were not an integral part of the statement, since they are not mentioned in it. In addition, there was no indication that the 186 signers of the statement endorsed the methods and conclusions of these articles. I have now been told, however, that the two articles were circulated among potential signers previous to their signatures being added to the document. It seems likely, therefore, that many of them may have substi-

tuted a reading of Mr. Jerome's article for a direct acquaintance with the statistical literature on astrology. This would be most unfortunate, since the cursory treatment accorded the large number of studies of Mr. Gauquelin by Mr. Jerome leaves much to be desired. In particular, Mr. Jerome's criticism of the use of the binomial distribution by Mr. Gauquelin does not appear to be well-founded (see the article by Mr. Gauquelin already cited). Yet it is on this basis that Mr. Gauquelin's work was dismissed by Mr. Jerome. It is hard to believe that scientists familiar with Mr. Gauquelin's technical reports would have allowed Mr. Jerome's error to stand.

We are informed by Professor Kurtz and Dr. Nisbet that "it may well be that Gauquelin's research [I take it they mean his conclusions] is warranted. We are not ourselves prejudging that" (p. 51). Yet prejudging seems to have been exactly what took place. Mr. Jerome described Mr. Gauquelin's results as "totally fallacious." Since Mr. Jerome and Professor Kurtz were coinitiators of the statement, one wonders what has occurred to change at least Professor Kurtz's mind. Could it be a closer acquaintance with Mr. Gauquelin's research? In any case, we are told that *The Humanist* is now setting up conditions for (further) testing of Mr. Gauquelin's results. While we can applaud this excellent step, it does seem somewhat belated. Why was such an investigation not carried out previous to the publication of "Objections to Astrology"? Would it not have been better to investigate first and then issue conclusions?

Professor Kurtz and Dr. Nisbet now also tell us, however, that Mr. Gauquelin's work is not astrological! Yet Mr. Jerome described Mr. Gauquelin's work in his article as "statistical astrology," a term which Professor Bok also uses in his article; both of these articles are cited by Professor Kurtz and Dr. Nisbet. It would seem that as long as they believed that Mr. Gauquelin's work was invalid, it could safely be dismissed as "statistical astrology." Now that Gauquelin's protests have created some doubt that it *might* be valid, however, it is suddenly considered irrelevant to the debate. Furthermore, the disingenuous statement that "Gauquelin himself explicitly denies that his work supports *classical* astrology" (emphasis mine) makes one suspect that there is a nonclassical astrology which Mr. Gauquelin does support. And indeed this is the case, as one can see by reading his recent *Cosmic Influences on Human Behavior*. In any case, surely the argument that planetary positions partially determine the times of birth of certain types of persons—which is one of Mr. Gauquelin's claims—is exactly the sort of thing that most of us would describe as astrological.

I compared the presentation of arguments against astrology in "Objections" rather unfavorably with what legal requirements for expert testimony would have permitted in court. While I do not think that the courtroom generally should be the forum in which scientific disputes are aired, it would have possessed three signal advantages in this case: (1) The qualifications of each of the "leading scientists" to act as an expert on astrology would have been carefully scrutinized. (2) The boundary between what was actually known from empirical studies and what was simply plausible scientific inference would have been more clearly drawn. (3) An adversary procedure would have forced a more adequate treatment of conflicting evidence such as that presented by Mr. Gauquelin.

It is precisely the lack of a careful scrutiny of qualifications, evidence, and opposing arguments that makes "Objections to Astrology" fall short of

scientific ideals.

The publication of "Objections to Astrology" has done little, as far as one can tell, to end the popularity of horoscopes and visits to astrologers. It would be interesting to see how small a dent it made in the sales of books on astrology or the reading of newspaper astrology columns. And yet it has considerable defects as a scientific document. It does little to confront the challenge posed by research such as that of Mr. Gauquelin. Persons like myself, who are not expert in either astronomy or statistics but who have a genuine curiosity about whether the planets influence human life in even minor ways, are ill-served by such an approach to delicate questions. The Greek philosopher, Pyrrho, whose followers called themselves *zetetics*, always advised, "Let the matter be further inquired into." I think this is excellent advice with regard to astrology.

Ron Westrum
Eastern Mich. Univ.
Ypsilanti, Mich.

Paul Kurtz and Lee Nisbet reply:

In our judgment Mr. Westrum's case against "Objections to Astrology" is basically an ad hominem argument. He attacks the statement by impugning the qualifications of the signers and, as such, he libels their scientific competence. He objects to the publication of the statement because he suspects that not all who endorsed it had the requisite "qualifications." Let us examine the merits of his reply to our article.

First, what Professor Westrum attempts to disguise in his discussion of whether the 186 signers of the statement on astrology were qualified to make such a statement, is that it is he, Ron Westrum, who introduces criteria for "expert witness" which are irrelevant to a clear discussion of the issues. He stipulates what criteria constitute conditions for expert testimony in a court of law.

Before he stipulates what these criteria are, he notes, "Expert testimony in court is subject to strict rules, some of them even more strict than the requirements for publication in a scientific journal" (p. 39). Professor Westrum then, interestingly enough, ignores his own qualification and procedes to prescribe courtroom criteria as necessary conditions of expert testimony or witness. The following are his exact words: "The expert may testify only to matters within his area of expertise. . . . That an expert must be qualified before testimony can be accepted seems obvious, but what is not always so obvious is that his expertise must be in the exact [*his emphasis*] *area on which he will testify" (p. 39).*

What this seems to imply is that in court a sociologist would not qualify as an expert witness on philosophy, nor would an astronomer qualify as an expert witness on astrology. Only an astrologer, in court, *would count as an expert witness on astrology. An astronomer studies and practices astronomy professionally and, therefore, even if he or she were thoroughly familiar with astrological claims and methodology, any testimony given regarding astrology for purposes of the court would not qualify as expert testimony. Under cross examination the astronomer would surely have to admit that his or her professional area of expertise was astronomy and not astrology.*

We drew these implications to suggest that these criteria are irrelevant when considering the value of the statement on astrology. Vindication of this position is provided when Professor Westrum himself *backs away from these needlessly restrictive criteria and points to relevant knowledge of the*

field and correct application of scientific methodology as the operationally relevant criteria for giving expert testimony. So it is Professor Westrum who creates the "straw man." If courtroom criteria are irrelevant to giving valid scientific testimony (as he *admits), why raise the issue in the first place? We suggest these criteria constitute an ad hominem argument designed to illegitimately detract from the credibility of the signers of the statement. The rhetorical question at the end of his article, "How many of the signers would survive a cross-examination in court on their qualifications to serve as an expert witness on astrology?" (p. 43), provides substantiation for this contention.*

Interestingly enough, if we were to follow the logic suggested by this initial criteria, then the same set of questions he raises about the scientists qualifications might also be raised about his. He tells us in his reply that he is "not expert in either astronomy or statistics." If so, given his own criteria for expert witness, how can he claim to pass on the scientific merits of astronomy in rejecting the cosmological theories of astrology? How, indeed, can he judge the merits of the Gauquelin's statistics if he is not an expert in the field? Has he done experimentation or read the relevant literature? Once he was on the witness stand, we would also have to "demand" to know Professor Westrum's qualifications in philosophy and logic (he is surely worried about our "training" in philosophy)—for his paper was primarily in the philosophy of science. Is he competent to judge issues in metascience? Last, but not least, we would have to ask about his expertise in astrology: Has he done scientific experimentation in the field? If so, we may then ask for the benefit of his research. If not, are his qualifications simply that he has read the relevant literature? But if that is the case, why should we assume that although he has done some reading in the field (and hence is competent to write about it) the many scientists who have expressed objections to astrology have not?

Professor Westrum's argument against the signers of "Objections to Astrology" is not original; it is the same kind of charge that astrologers have been leveling against the signers of the statement. Astrologers have repeated over and over again that the astronomers and astrophysicists who criticize them lack the "qualifications" to do so. According to them, the only ones competent to judge the issue are astrologers themselves. Professor Westrum thinks it unfair that we have drawn a similar inference about his argument, though he now concedes that one need not be a practitioner in a field to be able to evaluate many of its claims. He now says that he never claimed that none *of the signers were familiar with the relevant literature, but asked* how many *of them were familiar with it! Is he proposing that we give a qualifying examination for everyone who writes about the field. How does he know that he would pass it and that the scientists who were critical of astrology would flunk it?*

Mr. Westrum admits that he failed to mention that the paper by Dr. Bok, "A Critical Look at Astrology," accompanied the statement in The Humanist; *but this, he says, was an "oversight." The reason that he gives is that "Professor Bok's article avoided treating empirical studies." But his omission is far more serious than a mere oversight for he fails to understand the basic reasons why astronomers so strenuously reject astrology. These reasons are both empirical and theoretical. He should not dismiss logical coherence as a criterion of the adequacy of a theory. In his article Dr. Bok outlines some of the considerations—theoretical and empirical—for*

rejecting astrology. Professor Westrum may not consider these sufficient; yet they should not be simply dismissed. Astrology is based on the Ptolemaic system, which originally included the doctrine of epicycles, the division of the heavens into houses of the Zodiac, and the endowing of planets and constellations with magical and divine properties. Astronomers criticize it for its totally imprecise categories, for the fact that the precession of the equinoxes have thrown the major sun signs off by many degrees, and so on. The astronomer asks for quantifiable tests and mechanisms for the alleged influences of the planets, and these he cannot find. According to Dr. Bok: "Many believers in astrology speak glibly of the forces exerted by the sun, moon, and planets. I should mention here that these forces—according to astrology, critically effective only at the precise moment of birth—can hardly be gravitational or radiative in nature. The known forces that the planets exert on a child at the time of birth are unbelievably small. The gravitational forces at birth produced by the doctor and nurse and by the furniture in the delivery room far outweigh the celestial forces. And the stars are so far away from the sun and earth that their gravitational, magnetic, and other effects are negligible. Radiative effects are sometimes suggested as doing the job. First of all, the walls of the delivery room shield us effectively from many known radiations. And, second, we should bear in mind that our sun is a constantly varying source of radiation, radiating at many different wavelengths variations that are by themselves far in excess of the radiation received from the moon and all the planets together.

"Many believers in astrology have suggested that each planet issues a different variety of special, as-yet-undetected radiations or 'vibrations' and that it is the interplay between these mysterious forces, or quantities, that produces strong effects of an astrological nature. If there is one thing that we have learned over the past fifty years, it is that there is apparently conclusive evidence that the sun, moon, planets, and stars are all made of the same stuff, varieties and combinations of atomic particles and molecules, all governed by uniform laws of physics. We have seen samples of the moon that are similar to rocks on earth, and as a result of our space probes we have been able to study the properties of samples from the surface of Mars. It seems inconceivable that Mars and the moon could produce mysterious waves, or vibrations, that could affect our personalities in completely different ways. It does not make sense to suppose that the various planets and the moon, all with rather similar physical properties, could manage to affect human affairs in totally dissimilar fashions."

Now Professor Westrum may not consider such considerations as adduced by contemporary physical scientists to be sufficiently "empirical" (they seem eminently so for us). But to say that those astronomers or astrophysicists who are persuaded by them to reject astrology lack the requisite "qualifications" is surely a libel *against them, even though he may wish to deny that appellation.*

Professor Westrum devotes a great deal of attention to what he considers to be the significance of the work of the Gauquelins. He thinks their research presents evidence for the tenets of traditional astrology. We deny that this is the case. He also notes "that numerous other studies alleging to support astrology have been conducted" but does not indicate what they are or why he thinks they may lend greater credence to astrology. We reiterate that the main concern of "Objections to Astrology" was a criticism of popular astrology as it is practiced today, and

not the research of the Gauquelins. The statement cautions the public "against the unquestioning acceptance of the predictions and advice given privately and publicly by astrologers . . . [and] by the continued uncritical dissemination of astrological charts, forecasts, and horoscopes by the media."

The statement does not mention the work of the Gauquelins. It is true that Lawrence Jerome does criticize Gauquelins' work and labels it "astrological." But Gauquelin, in a later article in The Humanist, *strongly denies this characterization: "Jerome presents me as an astrologer. This is absolutely untrue: I never made horoscopes—on the contrary, I wrote many papers and books against them. . . . I never recommended the magic of astrology, but wrote several times the opposite" (Jan./Feb. 1976, p. 29). And again in a joint article with G. O. and A. A. Abell, the Gauquelins state: "Although astrology has no support in the scientific community, it holds wide interest among the general public. Now, with data available for a meaningful and objective test of horoscopic predictions, scientists can vastly increase the credibility of their rejection of astrology by applying such tests. . . . Consequently, the Gauquelins analyzed their data statistically to check a large number of astrological claims. They found no evidence to support traditional astrology and, in particular, no significance to the positions or configurations of the planets in the Zodiac."* (The Humanist, *"A Test of the Gauquelin 'Mars Effect'" Sept./Oct. 1976, p. 40).*

It is the case that the Gauquelins' claim to find a statistical correlation between the personality characteristics and professions of successful people and the positions of certain planets at the hour and the place of birth. Although Lawrence Jerome criticizes the Gauquelins' claim of a relationship between professions and planetary configurations, "Objections to Astrology" does not itself deal with the issue. What it rejects is the following: "In ancient times people believed in the predictions and advice of astrologers because astrology was part and parcel of their magical world view. They looked upon celestial objects as abodes or omens of the Gods and, thus, intimately connected with events here on earth; they had no concept of the vast distances from earth to the planets and stars. Now that these distances can and have been calculated, we can see how infinitesimally small are the gravitational and other effects produced by the distant planets and the far more distant stars. It is simply a mistake to imagine that the forces exerted by stars and planets at the moment of birth can in any way shape our futures. Neither is it true that the position of distant heavenly bodies make certain days or periods more favorable to particular kinds of actions, or that the sign under which one was born determines one's compatibility or incompatibility with other people."

Nowhere have we said that the Jerome and Bok articles were circulated among all of the potential scientists before their signatures were added. The scientists thus were not asked to endorse Bok's and Jerome's articles in toto or the arguments for or against Gauquelin and others. They endorsed only the statement itself. We sent the statement to a selected list of members of the American Astronomical Society and the National Academy of Sciences with a covering letter asking them if they would be willing to support its tenets. It was not, however, published by itself as an appeal to authority, but along with the two supporting articles outlining further detailed criticism of astrology.

As we said in our earlier reply, we were not, and are not now, prejudging the research of the Gauquelins, which

has been debated in the journals for almost 20 years. Even if their findings should be confirmed by further statistical research, this will surely not confirm the theories and claims of astrology or the kinds of astrological forecasts and horoscopes that we were criticizing—for the Gauquelins are themselves critics of these claims.

Professor Westrum maintains that it was inappropriate for The Humanist *to publish the statement. He argues that it has "considerable defects as a scientific document." But the statement was never intended as a scientific document; rather it was an expression of concern about a serious phenomena—the growth of irrationalism and obscurantism in modern society. It says that scientists "have become concerned about the increased acceptance of astrology in many parts of the world . . . one would imagine in this day of widespread enlightenment and education, that it would be unnecessary to debunk belief based on magic and superstition. Yet acceptance of astrology pervades modern society. . . . We believe that the time has come to challenge directly and forcefully the pretentious claims of astrological charlatans."*

Should scientists speak out about the growth of superstitious beliefs or should they retreat into the cloisters? As we pointed out, the media is dominated by a crescendo of pro-astrological viewpoints. Until this statement was issued, there had been virtually no dissenting view about the legitimacy of these claims. Rather than condemn the scientists, one would have thought that Professor Westrum would join forces and welcome the criticisms. Instead he adopts a "more-scientific-than-thou" attitude about the proper scientific approach. We agree with him that the scientific community's first commitment is to truth, and that any effort to willfully distort or suppress it is inadmissible. But surely that was not the case here. What is more profoundly at issue is the question of how scientists and scholars can best meet the rising epidemic of untested claims of the paranormal. It is a question of strategy. And it concerns no doubt the very future of THE ZETETIC and of the Committee for the Scientific Investigation of Claims of the Paranormal.

Do not scientists have an obligation to the larger society? May they issue statements—as, for example, many did concerning the dangers of nuclear-power plants or DNA recombinant research. Granted there may be disagreements until all the evidence is in. Yet we act on the best evidence that we have. To retreat from the marketplace of ideas while all around us are making unsubstantiated claims is the height of irresponsibility. And such retreat may have far-reaching implications for the future of science itself, which today suffers heavy criticism from many quarters. It is our conviction that the publication of "Objections to Astrology" served a useful public purpose; apparently this conviction was shared by the many who signed it. We disagree, incidentally, with Professor Truzzi when he says "that this statement received criticism by numerous scientists" (THE ZETETIC, vol. 1, no. 1, p. 87). Of the approximately 300 scientists who were asked to sign it (many could not be reached during the summer], *about 200 ended up by doing so. About a dozen declined, not because they disagreed with its contents, but for a variety of reasons—including the view that it did not go far enough or that it would not dissuade believers. Surely we can disagree about the effectiveness of the statement. But, at least, the 200 scientists who signed the statement believed that it served a useful purpose.*

Postscript: *We accused Professor Westrum of sloppy scholarship. Apparently the* New York Times *article*

that we referred to had two different headlines. We saw the first edition; in a later edition there was a different headline, which Professor Westrum quoted. We withdraw that criticism. He is also correct that we erred in not catching a misprint that should have read 1975 instead of 1976. Last, however, he says that although he certainly discussed astrology he "never mentioned astrologers, the word does not even appear in my article." It does, Professor Westrum; please reread your article, page 44, line 9.

* * *

Congratulations on the first issue of *THE ZETETIC*. The editorial staff has done an excellent job in establishing an initial level of high technical competence.

However, I—as well as many other members of the Committee—am shocked that the article by Ron Westrum ("Scientists as Experts: Observations on 'Objections to Astrology' ") attacks the expertise of the astronomers and scientists who signed the statement against astrology. I fail to understand what useful purpose is served by such an attack. Perhaps if Professor Westrum had approached the central question of astrology's validity in terms of modern science I could appreciate why the article was published; but impugning the expertise of leading scientists can only muddy the issue and create further unnecessary controversy.

In their rebuttal article, "Are Astronomers and Astrophysicists qualified to Criticize Astrology?" Paul Kurtz and Lee Nisbet quite correctly point out that the statement was not a simple appeal to authority but was supported by two lengthy articles presenting much evidence against astrology, evidence which Professor Westrum conveniently ignores. I totally agree with Kurtz and Nisbet that expert opinion—particularly in the cases of parapsychology and occult beliefs—is not to be limited to those with vested interests in such belief systems. As Kurtz and Nisbet point out, UFOlogists must not be the only ones permitted to give their opinions on UFOs, nor astrologers the only ones allowed to speak out on the subject of astrology. Aviation experts, astronomers, psychologists, and many other specialists may have relevant and important viewpoints on such subjects.

Admittedly, the question of astrological "expertise" is a bit tricky, especially if one is accustomed to thinking of expertise in scientific and technical terms. Because astrology evolved as a system of magic and is *not* a modern science, it is rather difficult for scientists today—be they astronomers, astrophysicists, sociologists, or statisticians—to get a firm grasp on exactly what the "ancient art" of astrology is and how it operates.

It might be helpful to think of astrology as an *alternative hypothesis*. Unfortunately, far too many people mistakenly think astrology's basic hypothesis is that the planets and stars exert a physical influence on human life and events. As I have stressed in my published writings, astrology's real hypothesis is that the planets and stars *magically* influence people and events here on earth via the "principle of correspondences" (e.g., because Mars appears red in the sky, it controls bloody wars and aggressive behavior).

Now, scientists *are* eminently qualified to judge the relative validity of hypotheses; in fact, testing and judging alternative hypotheses is the very basis of the scientific method. Therefore, I strongly feel that the 192 leading scientists who signed the statement against astrology were quite qualified to judge whether or not the magic hypothesis of astrology holds any possible validity in terms of modern science.

While many of the signers of the statement may not have realized that the "principle of correspondences" is the basic operating assumption of astrology, I'm sure all the signers quite accurately considered astrology as superstitious magic. I refer those readers who may want to examine more closely the basic magical hypothesis of astrology to my initial article in *Leonardo* (vol. 6, 1973, pp. 121-30) or to my *The Humanist* article published along with the statement "Objections to Astrology" and an accompanying article by Professor Bart Bok (Sept./Oct. 1975, pp. 10-16; now available as a reprint from Prometheus Books). My forthcoming book from Prometheus Books, *Astrology Disproved,* will further detail the magic in astrology, both in its basic assumptions and in its psychological effects upon people.

Thus far, only Barth and Bennett (*Leonardo*, vol. 7, 1974, pp. 235-37) have publicly discussed my contention that the basic astrological hypothesis is a simple magical correspondence between omen (planets, stars) and intended object (client, event). I invite fellow associates on *THE ZETETIC* Committee, and others interested in the question of astrology's validity, to examine the evidence and decide for themselves whether or not astrology is basically a simple system of magic and thus invalid in terms of modern science.

Lawrence E. Jerome
Cupertino, Cal.

Politics and UFOs

When Prof. Ron Westrum discusses the *seeming* endorsement of UFOs (Unidentified Flying Objects) by the House of Representatives Science and Astronautics Committee in his article in *THE ZETETIC*, it is clear that he, like many others, has been badly misled concerning the circumstances of that situation.

"The UFO Symposium," as it was termed, was held at the instigation of one member of the committee, Congressman J. Edward Roush (D., Ind.). Roush, a "UFO believer," would later join the board of governors of a large UFO organization that had been seeking just such congressional exposure as the symposium provided.

Roush, who made all the arrangements for the symposium, delegated the selection of "experts" invited to testify to the late Dr. James E. McDonald, then the spiritual leader of the UFO movement. Not surprisingly, McDonald invited himself and five other like-minded scientists to testify.

When a member of the committee staff suggested to Roush that I, a leading UFO skeptic, be invited to testify, the idea was quickly vetoed. Thus the conclusions reached by Roush and his six "experts" are neither surprising nor truly representative.

Philip J. Klass
Washington, D.C.

Psi?

Briefly, I should like to comment on certain statements made in G. A. Fine's article, "Psychics, Clairvoyance, and the Real World." His assertion that "many laboratory studies have shown beyond a reasonable level of statistical significance that parapsychological processes are operating" is the kind of statement that is sure to be taken out of context by the promoters of such crackpottery and used to "prove" that *THE ZETETIC* supports the reality of psi. This is hardly the case; rather, *THE ZETETIC* seeks to report accurately on whatever research is being done in the field, to publish comments on this research—accurate and scientifically sound comments—and to call attention through intelligent dialogue to the

claims made by those who would sell nonsense rather than scientific news to the public and the rest of the academic world.

Fine also says that "psychics" serve a function on our culture. True, they do. But he states as well that their function is a useful one in that they "serve to relieve tension" and that therefore "anxiety about the unknown is reduced." Very well, I ask readers of *THE ZETETIC* to compare this reasoning with a close analogy. Are we to support the use of aspirin and tranquilizers among the ill, and praise their benefits as preferable to medical treatment for serious physical or mental disorders? Is it better that society turn to crackpot "psychic" revelations rather than that somewhat neglected entity, Truth? No amount of nonsense will replace a confrontation with reality, any more than Bufferin will cure the *cause* of a hangover. . . .

Mainly, my concern is not with the overall intent of Fine's article but with the specifics mentioned above, which our friends of the irrational will gleefully flout out of context to muddy the issue. I should like to see more editorial disavowment in the body of the periodical to nullify this possibility.

James Randi
CSICP
Rumson, N.J.

Geller

In the Fall/Winter issue of *THE ZETETIC,* Ray Hyman, in reviewing a book on Uri Geller, states that the metallurgical findings of Dr. Wilbur Franklin concerning Geller-broken metal depend on observations made at Stanford Research Institute. First, the value of the metallurgical findings was in the fact that *they depended not at all on observation, but on the fracture surface effects,* which Dr. Franklin, after two years of investigation, determined were paranormal. The important fact was that atomic sections of the metal had simultaneously been frozen and semimelted in a way that shocked the theoretical physicist (who also holds degrees in metallurgy). Moreover, had Mr. Hyman been informed adequately about the whole situation, he would have known that metals Dr. Franklin studied *were not broken at SRI,* but at Ossining, N.Y., and Santa Cruz, Calif. His criticism of the findings is thus rendered invalid and constitutes only an armchair, superficial evaluation based on obvious bias.

It is interesting that the magazine makes claim to neutrality and in the same breath lists as members of its board such extreme-opinion-holders as James Randi, Milbourne Christopher, Martin Gardner, and Ray Hyman. (See *The Search for Superman,* by John Wilhelm, a former science writer at *Time,* for Hyman's "objectivity.") Your board is very obviously slanted toward the ardently skeptical, not the zetetic. For instance, to balance off James Randi, your board would need someone like Dr. Andrija Puharich, though I'm sure you'll laugh at that. Still, in his beliefs he is no more extreme than Mr. Randi and many of the others.

I suggest you change your name or balance out the crew.

Mike Brown
Niagara Falls, N.Y.

Ray Hyman replies:
Mike Brown writes that "had Mr. Hyman been informed adequately about the whole situation, he would have known that the metals Dr. Franklin studied were not even broken at SRI, *but at Ossining, N.Y., and Santa Cruz, Calif." In this looking-glass-world of psychic investigation, somehow this is supposed to count as a point against*

my criticism of Franklin's claims. In neither of the two articles by Franklin included in The Geller Papers *are the locations mentioned by Brown indicated. The impression is clearly given that at least some of the four objects discussed were bent at SRI. But the more serious question concerns the conditions under which they were bent. Franklin's descriptions of these conditions are vague to the point of being meaningless. If someone wishes to claim scientific status for his observations, it is his responsibility to make clear the conditions under which they were made. Is Mr. Brown blaming me for the fact that Franklin fails to describe where the metals were bent?*

Mr. Brown somehow comes to the startling conclusion that my criticism "of the findings is thus rendered invalid and constitutes only an arm-chair, superficial evaluation based on obvious bias." Both Brown and I would agree, I assume, that the value of Franklin's claims depends not at all on observation (which all parties seem to admit are in this case useless as scientific evidence), but on the evaluation of the fracture surfaces under an electron-scanning microscope. But it is naive, and definitely nonscientific, to believe that such an examination and conclusion can be valid without also knowing the exact conditions that obtained prior to, and at the time of, the fracture. Unless the investigator—even if he is the world's greatest metallurgical expert—has some reasonably good hypotheses as to how the metal might have been bent by normal means, he has no basis for producing a control fracture with which to compare the allegedly psychically induced fracture. Since I wrote the review, I have met Dr. Franklin and was witness to some sessions in which magician James Randi bent a spoon and a key (Franklin's own key) under conditions such that Franklin could not account for the phenomena. It is clear that Dr. Franklin is unaware of the many ways that keys, rings, and spoons can be fractured or bent by trickery. There is no reason, of course, why he should be. But until he is aware of these means, how can he state that a given fracture could only have been produced by supernormal means?

To make the investigation of the fracture surfaces scientific, not only must there be appropriate control comparisons, but all the evaluations must be made on a "blind" basis. The expert should be given several specimens of fractured surfaces. Some would be ones actually produced by the alleged psychic; some would be control fractures produced by a variety of means in specimens which are duplicates of those used by the "psychic"; and some would be fractures produced in duplicate specimens by a magician, such as Randi, who is quite proficient at simulating Uri's accomplishments. The expert must not know which fractures have been produced by which means at the time of his analysis and write-up. Until such precautions are taken, we do not have anything that constitutes scientific evidence for abnormal fractures caused by Uri Geller.

I hope Mr. Brown realizes that insistence on these minimal safeguards is not a matter of perversity dictated by "obvious bias." The history of science is littered with embarrassments of all sorts that have occurred just because an expert in some field made his observations without adequate control comparisons.

Rationality

Having read many skeptics' investigations of the paranormal, I have repeatedly noticed that they appeal to, and are often conducted in the name of, "rationalism" and "naturalism." Rationalism is defined as the exaltation of human reason to the place of, and as

the sole guide to, truth; and which holds that all things obey natural laws. This "commonsense" world-view has been properly criticized as essentially a bias against things one may simply not understand; it is an anachronism in the realm of higher scientific investigations. Physics and mathematics are all about phenomena and concepts which defy rationality: black holes; square roots of negative numbers, which have countless practical applications; the Heisenberg Uncertainty Principle, according to which one can influence atomic experiments with personal energy, even by electromagnetic waves from electric thought impulses in the brain; an electron being in two places at once (see *Science Digest*, Oct. 1976, p. 53), i.e., quantum physics; space and time bending and reversing, i.e., relativity; etc.

The history of science is replete with examples of rationalists and naturalists protesting uncommonsense phenomena and concepts. For example, when it was claimed the world is round the rationalists protested, "Then why wouldn't people fall off the bottom?"

A favorite problem I like to spring on so-called rationalists to show that what passes for rationalistic rejection of an apparently unacceptable idea is really a mistaken self-confidence in one's inability to figure out a puzzle about a real phenomenon is to ask for an example of the human body's influencing electronic circuits at a distance without connecting wires. Typical reactions, often emotional, are: "If that could occur, rationality would be destroyed," "self-delusion," "magic tricks," and "impossible." The solution is that often one can influence the volume of a radio by moving around in its vicinity.

Another example that hits home my point occurred during a lecture I attended in which an astronomer was debunking astrology before a college audience. I asked him, "Is it possible that lunar phases can influence plant growth?" He ridiculed me and asked, "You don't believe that nonsense, do you?" I retorted, "I don't believe in astrology, but I believe there is merit in some of it. You, with your background, don't know that moonlight is reflected sunlight, which green plants need for growth?" He turned scarlet with embarrassment and there was a great commotion in the audience.

A. H. Klotz
Babylon, N. Y.

Von Däniken

In your first and most interesting issue the article by John T. Omohundro on Erich von Däniken seemed a little out of place, unless it was to show that the response to his "unorthodox" views tends to the paranormal. I am sorry to hear that Omohundro's day is frequently soured by his students mentioning the dreaded von Däniken, and perhaps they should advise him to read *The Sirius Mystery*, by Robert K. G. Temple (Fellow of the Royal Astronomical Society, like myself), which is a much more scholarly book on a similar theme. However, give von Däniken the credit for writing frankly, "I am not a scientific man, and if I had written a scientific book, it would have been calm and sober and nobody would talk about it." This illuminating quotation appeared at the beginning of Omohundro's paper, and then he castigated his simple readers by declaring fiercely, "If von Däniken seems like science to you, shame on you!"

There are many examples of slipshod writing and actual errors in von Däniken's justifiably popular books, but as the above quotation shows, his views are generally sensible and rational. The evidence he gives for extraterrestrial visitors should be examined and discussed without preconceived ideas on this

fascinating subject. If there are records left by people from more advanced civilisations than ours, as he suggests, then it would be better to finance expeditions to investigate these in detail before we divert more of our scarce resources to the transmission of complicated code messages to the wilder shores of outer space.

In an editorial you state that "the ultimate goal of science must be to finally account for what Charles Fort called the 'damned facts,' which empirically exist but will not fit smoothly into our currently limited theories." This seems to be a mistaken idea of what Fort said, i.e., "by the damned, I mean the excluded" (*The Book of the Damned*, p. 1, any edition). Some of these damned facts, such as the fall of large lumps of ice, may have, or must have, a reasonable scientific explanation, but scientists frequently refuse to consider the views of those they regard as outsiders, whatever their qualifications.

The typical response to these disturbing views reminds me of the story about Galileo in *Pioneers of Science*, by Sir Oliver Lodge (Macmillan, 1928): "The earth no longer the only world to which all else in the firmament were obsequious attendants, but a mere insignificant speck among the host of heaven! Man no longer the centre and cynosure of creation, but, as it were an insect crawling on the surface of this little speck! All this not set down in crabbed Latin in dry folios for a few learned monks, as in Copernicus's time, but promulagated and argued in rich Italian, illustrated by analogy, by experiment, and with cultured wit; taught not to a few scholars here and there in musty libraries, but proclaimed in the vernacular to the whole populace with all the energy and enthusiasm of a recent convert and a master of language! Had a bombshell been exploded among the fossilized professors it had been less disturbing." Perhaps Omohundro and company are reluctant to accept the idea that they might be inferior to other beings who were once on this planet. Or are they a little jealous of the success of writers whose books sell in vast numbers?

One other comment by Lodge about Galileo may be of interest; it refers to the occasion when Galileo first observed the moons of Jupiter in his telescope. When Galileo told his academic friends about it, "some there were who having been shown them refused to believe their eyes, and asserted that although the telescope acted well enough for terrestrial objects, it was altogether false and illusory when applied to the heavens. Others took the safer ground of refusing to look through the glass. One of these who would not look at the satellites happened to die soon afterwards. 'I hope,' says Galileo, 'that he saw them on his way to heaven.' . . . Galileo wrote to Kepler, 'Here at Padua, is the principal professor of philosophy whom I have urgently requested to look at the moon and planets through my glass, which he pertinaciously refuses to do. Why are you not here? What shouts of laughter we should have at this glorious folly!' "

I mentioned the incident about Galileo's telescope in a letter to a university lecturer. He replied that the reaction of the establishment at that time was understandable: for instance, there were many strange things seen today in electron microscopes which did not actually exist. I pointed out that Galileo had observed the moons of Jupiter for many days and had been able to assess their orbits. My friend did not reply and I have not heard from him since, but I seem to hear faint echoes of Galileo's laughter, particularly when I read some of Carl Sagan's remarks.

Other damned facts relate to the evidence for some cosmic electrical discharges, which I have described in my

paper "Lightning in Astronomy" (*Nature*, vol. 252 [1974], pp. 539-42) and the ability of lightning to produce powerful blasts of hot air (see L. H. Worth, *Nature*, vol. 236, [1972], p. 413) and perhaps to cause a large lump of ice to fall from the sky, as postulated in my paper "Atmospheric Mysteries and Lightning," in the *Electrical Review*, London, 17/24 December 1976, appearing shortly in more detail in the *Journal of Meteorology*, Trowbridge.

I wish *THE ZETETIC* every success and I hope it will treat unorthodox views with tolerance and some semblance of impartiality.

E. W. Crew
Broxbourne, England

Dianetics

Having read with interest Dr. Wallis's excellent article, which essentially reports on the early days of Dianetics in the 1950s as also is evidenced by his bibliography which does not include many of Hubbard's books of recent years, particularly *Dianetics Today*, which would be especially apropos to this subject, I would like to make a few up-to-date comments.

Dianetics today is going stronger than ever, as the core of Scientology, which includes not only Dianetic processing which eradicates psychosomatics, but also other processes developed to increase an individual's awareness and abilities. Public usage has declined since its application and has now been largely contained within Scientology organizations.

Although I don't agree with Hubbard's bureaucratic and burdensome way of administration of Dianetics and associated processes to the public, I do feel that his discoveries of life and the mind and its functioning supersede in understanding and workability all that psychology and psychiatry have attempted to do for over a century. It is reputed that Walter Winchell once said that history would regard the development of Dianetics as the greatest discovery of the twentieth century. I think this will come to pass.

However, Dianetics is no longer a "poor man's psychoanalysis," but today has become a "rich man's psychoanalysis," as processing is $60 per hour normally, and at the elite processing center in Clearwater, Florida, $200 per hour is charged. I would also point out that procedures mentioned in Dr. Wallis's article, such as lying on a couch, reverie, and cancellers, were abandoned long ago as unnecessary. Today Dianetic processing is done simply by two persons facing each other while seated in upright chairs.

Because of the high fees asked today for Dianetics—which essentially puts it out of public reach—plus the bureaucratic administration of it under a code of restrictive communication and lack of free expressions, the expansion and benefits of Dianetics to the overall public has been impeded.

Even under these circumstances, however, the discoveries of Ron Hubbard and the workability and benefits to be derived from them have been so great that many facets of his works are currently being picked up by educators, psychologists, psychiatrists, and others and utilized and expanded upon, with credit seldom being given to their originator. One example of this is the EST organization, whose fast-growing success appears to be the result of providing some of the benefits to the public at a price which they can afford, while at the same time permitting totally free expressions among adherents.

If Hubbard had followed a similar method of administration, his organizations, and also public participation, most likely would have expanded far more quickly than they have; and in

such a case his exact recommended procedures might have remained more intact, as compared to those of other groups and persons now utilizing his discoveries outside of his organizations. If one day he should still decide to make the benefits of his discoveries available to the average person for a nominal fee under nonrestrictive circumstances, this would soon be a boon to mankind and society.

In any case, in my opinion, in years to come Ron Hubbard will go down in history as a greater contributor to the anatomy of the mind and to the philosophy and understanding of life than were Sigmund Freud and others.

Ross Shideler
Dallas, Texas

Past *zetetics*

Well, you had my hopes up until I discovered what sort of organization you represent. For two years I've been scraping up every fragment of Zetetic material I can find (and there is damned little left) for a history of the Zetetic movement. For your information, for the last 125 years, the word *zetetic* has been used almost solely in reference to the flat-earthers.

Oh, I know about the Greek *zetetikos*. So did Samuel Birley Rowbotham, who published his *Zetetic Astronomy* in 1849. He claimed to inquire only after *facts*, leaving mere theories to the likes of Copernicus and Newton. According to his facts, the earth's flat, and that's that!

In nineteenth-century England, the noun *zetetic* was used as a synonym for "flat-earther." A Zetetic Society was organized in London about 1872. It was later superceded by a Universal Zetetic Society, which was based in London, but had tentacles throughout the English-speaking world. In 1873 a Zetetic Society was founded in New York. And Charles Johnson, President of the International Flat Earth Research Society of America, still refers to himself and his faithful little band as zetetics.

Besides Rowbotham's masterpiece, there was a later *Zetetic Astronomy*, by Lady Blount and Carl Albert Smith, and, *Zetetic Cosmogony*, by "Rectangle." By now you should be ready for this: *The Zetetic*, "a monthly journal of cosmographical science," flourished from 1872-1873.

If you're aware of the above, then you have an even stranger sense of humor than I have. If not, I think you have egg on your face. Because "zetetic" now means "inquiring" just like "gay" means "light-hearted."

Robert J. Schadewald
Rodgers, Minn.

The Zetetic invites responses from readers. We will print as many letters as space allows. Space limitations may require editing of letters.

Committee News Notes

GELLER CHALLENGE UNANSWERED

On 11 June 1976 a proposal was issued by CSICP to alleged psychic Uri Geller. It was published in the July/August issue of *The Humanist* and suggested that serious, controlled tests of Mr. Geller be performed by a competent group at a time and under circumstances suitable to him. A time limit of 45 days was set, during which time he could reply to the proposal.

Since the CSICP has never received any form of communication from Uri Geller concerning this matter, in accordance with the closing statement of the proposal, we now deem that such refusal to answer is a refusal to appear before the Committee.

It seems strange that a man who has declared himself so anxious to prove the truth of his paranormal claims refuses this excellent opportunity to provide once and for all the answer to a simple question: Are his powers genuine, or the result of trickery and deception?

With his refusal to be tested under really satisfactory conditions the answer to this question seems obvious.

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We have been pleased with the response to our new Committee. We have been consulted by a wide variety of media and agencies for information, which we have been happy to provide. In addition, we have been able to place such agencies in contact with knowledgeable friends of the Committee, who have in turn been able to provide useful services. We welcome such inquiries and will continue to do what we can to aid the public in obtaining objective information about paranormal claims.

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We have had several requests to form a speakers bureau to provide speakers and participants for groups and institutions interested in obtaining presentations, lec-

tures, etc., on paranormal topics from a scientific perspective. Consideration is being given to these suggestions, but in the meantime we will be pleased to refer those interested to appropriate individuals (including, but not exclusively limited to, Fellows of the Committee), who can then negotiate directly for such appearances. Those interested should write to the editor of this journal for such referrals.

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The 1977 meeting of the American Sociological Association will include a section on the sociology of deviant belief systems that will include papers dealing with paranormal claims.

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Dr. Hans Bender, a leading European parapsychologist, has long been listed as having both a Ph.D. (from Bonn University, 1933) and an M.D. (from Strasbourg University, 1941). The German magazine *Der Spiegel* (28 February 1977) reported that it was impossible for them to obtain any formal evidence of Dr. Bender's degree in medicine from either Dr. Bender or Strasbourg University.

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Dr. Wilbur M. Franklin, the physicist at Kent State University who previously had been convinced that metallurgical evidence supported Uri Geller's claim of having mentally bent a platinum ring has informed us that he has now become aware of an error in his earlier examination. Dr. Franklin is planning to write up his findings for future publication.

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Randi writes us that "RAI, the Italian radio and television network, is preparing a series of five one-hour television programs on the paranormal. When they started out to research the subject, it seemed the approach would be positive. But the further producer Piero Angela got into the research, the less evidential the data seemed. He encountered evasion, uncertainty, and outright incompetence as he spoke with many personalities in parapsychology. He's not at all sure that Italian audiences are going to be happy about the results as they see them on their screens. Belief in the supernatural is very high in Italy, he says."

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Randi writes: "On November 13th last, famed psychic Uri Geller appeared in suburban Chicago. A reporter from the *Chicago Journal*, Francis Fullam, attended the magic show and was able to obtain a spoon that had mysteriously broken in the hands of the performer during the show. This spoon, in fragments, was delivered

to Louis M. Osika, a scientist specializing in metal-fracture analysis. It was tested alongside a similar spoon which Mr. Osika broke in two merely by bending it several times to and fro.

"Says the report: 'An examination of the outside and fractured surfaces of the spoon discloses evidence that it was repeatedly bent in opposite directions, thus applying maximum tensile and compressive stresses at the outside surfaces of the spoon. . . . In summary, it is our finding that the fracture mode was cyclic fatigue cracking. It is also our conclusion, because of the comparative test spoon-fracture features, that a force similar to that applied to the test spoon was the cause of fracture in [Geller's] spoon.'

"This report is in agreement with previous contentions that Geller fractures spoons by preparing them in advance of or during the demonstration. Though Margaret Roberts, another reporter for the *Journal*, was at first partly convinced by Geller when he fractured a spoon she had supplied, upon thinking back, she recalled that he 'actually took a walk between rooms with the spoon before bending it.' And the mystery was solved.

"As Fullam says, in concluding his lengthy report, 'In view of the results of the *Journal's* scientific inquiry, we feel we can make the following provisional statement: Advances in chemistry, physics, and psychology seem to have failed to decrease manual dexterity or increase visual acuity. The hand is still quicker than the eye.'"

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NEW SUBCOMMITTEE ON UFO'S

A Subcommittee on Unidentified Flying Objects (UFOs) of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICP) has been formed to provide the public and news media with authoritative, no-nonsense information on UFOs. Until the late 1960s the U.S. Air Force investigated reports of UFO sightings and provided a counterbalance to the sometimes wild claims of UFO enthusiasts. But since 1969, when an independent University of Colorado study confirmed the Air Force's finding that there was no substantive evidence of extraterrestrial or other alien craft in our skies, the Air Force has ceased to evaluate reported sightings. There has been a resulting void that the subcommittee is expected to fill.

The new group will be headed by Philip J. Klass, a member of the executive council of CSICP and a senior editor of *Aviation Week and Space Technology.* Klass has devoted many hours over the past 11 years to studying UFO cases and finding prosaic, terrestrial explanations for them. The results of much of that work are found in two books he has written on the subject, *UFOs Explained* and *UFOs Identified.*

Robert Sheaffer and James E. Oberg, both experienced UFO-case investigators, will be associate directors of the subcommittee.

Contributors

Ray Hyman is professor of psychology at the University of Oregon, in Eugene, Oregon.

Richard Kammann is associate professor of psychology at the University of Otago, in Dunedin, New Zealand.

Norman R. King is assistant professor of geology in the Department of Geosciences at the University of Tennessee at Chattanooga.

Philip J. Klass is a fellow of the Institute of Electrical and Electronics Engineers, an author, and a technical-science writer.

David Marks is senior lecturer in psychology at the University of Otago, in Dunedin, New Zealand.

John McGervey is associate professor of physics at Case Western Reserve University, in Cleveland, Ohio.

James Oberg is a captain in the United States Air Force, a science writer, and an associate editor of *Space World.*

Robert Sheaffer is a free-lance science writer and computer-systems analyst whose articles have appeared in *Spaceflight, Astronomy, Official UFO*, and other publications.

James R. Stewart is assistant professor of sociology in the Department of Social Behavior at the University of South Dakota at Vermillion.

Marcello Truzzi is professor of sociology at Eastern Michigan University.

Roy Wallis is a lecturer in sociology at the University of Stirling (Scotland) and the author of *The Road to Total Freedom: A Sociological Analysis of Scientology.*

Rosa Willy is a free-lance scholar best known for her translation of *The Necronomicon.*

Eric Woodrum is a doctoral candidate in sociology at the University of Texas at Austin.

The Committee for the Scientific Investigation of Claims of the Paranormal

Initially sponsored and supported by the American Humanist Association, and first announced in the May/June 1976 issue of *The Humanist* magazine, the Committee for the Scientific Investigation of Claims of the Paranormal stated the following objectives:

*To establish a network of people interested in examining claims of the paranormal.

*To prepare bibliographies of published materials that carefully examine such claims.

*To encourage and commission research by objective and impartial inquirers in areas where it is needed.

*To convene conferences and meetings.

*To publish articles, monographs, and books that examine claims of the paranormal.

*To not reject on a priori ground, antecedent to inquiry, any or all such claims, but rather to examine them openly, completely, objectively, and carefully.

Publication of THE ZETETIC as the official journal of the Committee is a first step in these directions.

Paul Kurtz, Co-Chairman, Philosopher, SUNY at Buffalo, Editor, The Humanist
Marcello Truzzi, Co-Chairman, Sociologist, Eastern Michigan Univ., Editor, THE ZETETIC
Lee Nisbet, Executive Director, Executive Editor, The Humanist

Fellows of the Committee:

George Abell, Astronomer, UCLA; **James E. Alcock,** Psychologist, York Univ., Canada; **Isaac Asimov,** Chemist, Author; **T. X. Barber,** Psychologist, Medfield Foundation; **Richard Berendzen,** Provost, American Univ.; **Brand Blanshard,** Philosopher, Yale; **Bart J. Bok,** Astronomer, Steward Observatory; **Bette Chambers,** President, American Humanist Association; **Milbourne Christopher,** Magician, Author; **Daniel Cohen,** Author; **L. Sprague de Camp,** Author, Engineer; **Persi Diaconis,** Statistician, Stanford Univ.; **Eric J. Dingwall,** Anthropologist, Author; **Christopher Evans,** Psychologist, National Physical Lab., U.K.; **Charles Fair,** Author; **Anthony Flew,** Philosopher, Reading Univ., U.K.; **Martin Gardner,** Author, Scientific American; **C. E. M. Hansel,** Psychologist, Univ. of Wales; **Sidney Hook,** Prof. Emeritus of Philosophy, NYU; **Richard Hull,** Philosopher, SUNY at Buffalo; **Ray Hyman,** Psychologist, Univ. of Oregon; **Leon Jaroff,** Senior Editor, Time Magazine; **Lawrence Jerome,** Science Writer, Engineer; **Philip J. Klass,** Science Writer, Engineer; **Marvin Kohl,** Philosopher, SUNY a Fredonia; **Lawrence Kusche,** Science Writer; **Ernest Nagel,** Prof. Emeritus of Philosophy, NYU; **James Prescott,** Psychologist, HEW; **W. V. Quine,** Philosopher, Harvard Univ.; **James Randi,** Magician, Author; **Dennis Rawlins,** Science Writer, Astronomer; **Carl Sagan,** Astronomer, Cornell Univ.; **B. F. Skinner,** Psychologist, Harvard Univ.; **Marvin Zelen,** Director, Statistical Laboratory, SUNY at Buffalo; **Marvin Zimmerman,** Philosopher, SUNY at Buffalo.

Institutions given for affiliation only.